THE IRON AGE

THURSDAY, DECEMBER 15, 1892.

The Webber Side Self-Dumping Car.

The accompanying engravings show very clearly the principal features of a side self-dumping car built by the Trenton Iron Company of Trenton, N. J. The car was designed by S. S. Webber of the above company, by whom patents have been applied for. The capacity of the car is 2800 pounds of coal, the gauge of the track is 30 inches, and the weight of the car empty is 2000 pounds. A number of these cars have been built for other parties.

Weight in Marine Engines.

Commodore Melville discusses the weight of marine engines as follows in his annual report: The general use of steel forgings and castings for the important parts of a marine engine in place of the heavy iron forgings and castings formerly used, the abandonment of the old cast-iron, box-shaped condensers, the adoption of hollow shafting, and many other improvements have all contributed toward lightening our machinery, but there is a limit beyond which it is not prudent to go, even with greatly improved material; and it is surely better to carry the necessary weight in the engines than to be constantly called upon to repair serious breakdowns, not to mention the risk of a dreadful calamity, involving loss of life and property of enormous value. Another thing to be borne in mind is the fact that we cannot approach as close to the limit of strength in marine engine design as is possible in designing structures on shore. A steel bridge and a marine engine may have to resist the same load or bear the same work, but the factor of safety used in proportioning the parts of the statical structure would be much too small in designing the engine, because the work of the latter is done under very different conditions. Not only are the parts of the engine in active motion themselves, but the foundation upon which it rests is necessarily yielding and unstable, facts that subject the various parts to many variable and severe strains. A rod or bolt which in a bridge will resist a certain load with absolute safety would, if introduced into a marine engine to bear an exactly similar load statically considered, have to be considerably strengthened by increasing its size and consequently its weight.

Melville on Steel Castings.

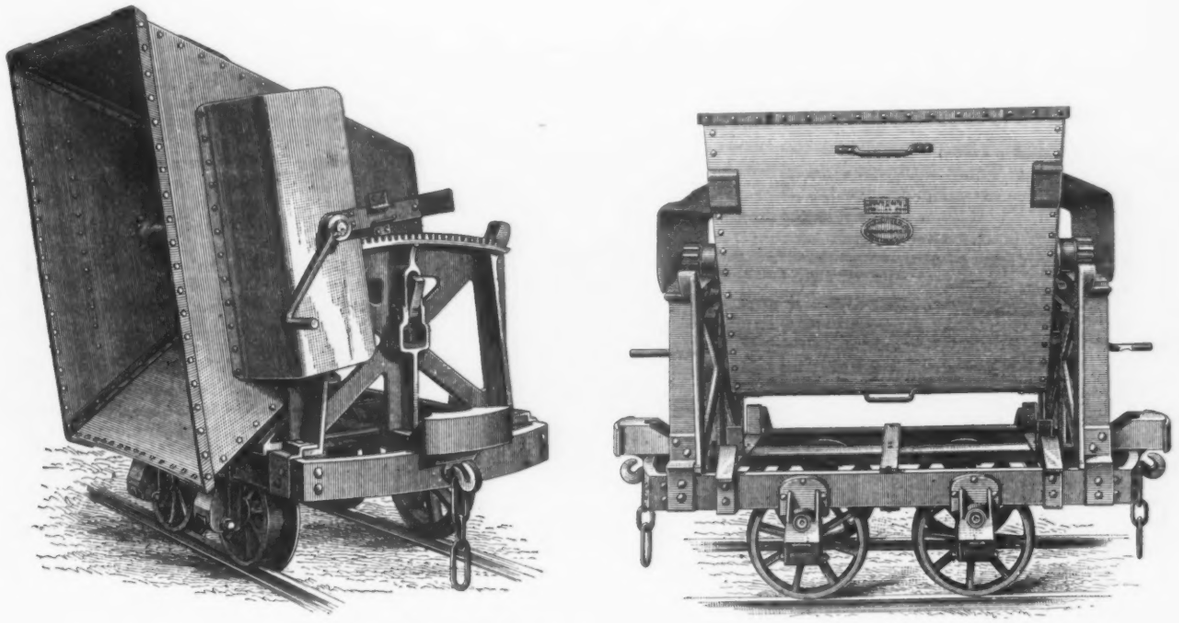
Commodore Melville, in his annual report just issued, makes the following reference to steel castings:

In regard to the matter of steel castings, I am glad to be able to report that we are now having less trouble in obtaining them, showing that considerable experience has been gained and progress made in this art since we first began trying to get such work done for our new engines. That there is still considerable room for improvement in the art of making steel castings is shown by the following experience. The bureau recently sent two designs for engine columns—one a modified form of box girder, the other a form of I beam—to four of the most prominent steel casting establishments in the country, asking which of the two forms was regarded as the simpler to cast. One firm reported that it could cast either without difficulty; another said that it could cast the I-beam, but that the girder was impossible; the third firm offered to make the girder but not the I-beam, saying that the latter was a form that no one could make, while the fourth establishment claimed that both forms were impossible to cast in steel.

The Pennsylvania Natural Gas Company of Pittsburgh brought in a gas well at Elizabeth, Pa., last week which is said to show a heavier pressure than any of the wells ever struck in that region. Drilling operations are being pushed vigorously and several other wells are expected to be brought in within a few weeks.

A Fuel-Gas Plant Tested.

Advices from Greensburgh, Pa., state that a successful test of a new fuel gas plant built by the Greensburgh Natural Gas Company, at Greensburgh, was made last week. The process is known as the Askin method, and is the invention of Jos. Askin, a former oil producer in the Lima, Ohio, field. In manufacturing fuel gas by this process a water gas was generated by passing superheated steam through 6 and 8 feet of coke at a white heat. The carbon which was added was obtained by spraying hot oil on fire brick at a white heat. The two gases are fixed and become thoroughly mixed by passing them over a large surface of fire brick at a great heat, the brick being ingeniously arranged over and close to the coke fires. The two hot gases were next passed through a water seal and a series of scrubbers and into the gasometers, or, as Mr. Askin called them, "gas holders," perfectly cold and ready for use. Mr. Askin employed two sets of generators, which he used alternately for about 30 minutes at a time. The coke fires were replenished and rebeated when not used. The oil used was the McDonald product. Mr. Askin explained that to produce a light of 12 candle-power he would use 25 pounds of coke and 2 gallons of oil, and for an 18 candle-power gas he would add 1 gallon of oil. To obtain a light of 22 candle-power intensity Mr. Askin stated he would use an extra gallon of oil to the quantity burned when he produced the 18 candle-power light. As the tar in McDonald oil is less than 5 per cent. it may be seen that but little waste of materiel is expended by the Askin method.



THE WEBBER SIDE SELF-DUMPING CAR.

WORLD'S FAIR NOTES.

Contract Signed for a Tower.

On November 22 the Phœnix Bridge Company of Philadelphia signed a contract with a corporation known as the World's Fair Tower Company for the erection of a steel tower 560 feet high and 210 feet in diameter. The location of the tower will be inside the fair grounds inclosure, on the Midway Plaisance, not far from the Woman's Building. Deliveries of material on the contract are to begin this month, and the entire work is to be completed by April 1, 1893. The project has been under contemplation for some time, but it has been delayed by concessions made to other parties for similar purposes, on which the prescribed time had first to be permitted to expire. The capital stock of the company is placed at $2,000,000. Wm. Hampden Johnstone of Philadelphia is president, Charles P. Platt is secretary, Charles L. Eaton is trustee for subscribers to stock, and Karl L. Lebman is engineer in charge of construction. The office of the company is in Portland Block, Chicago.

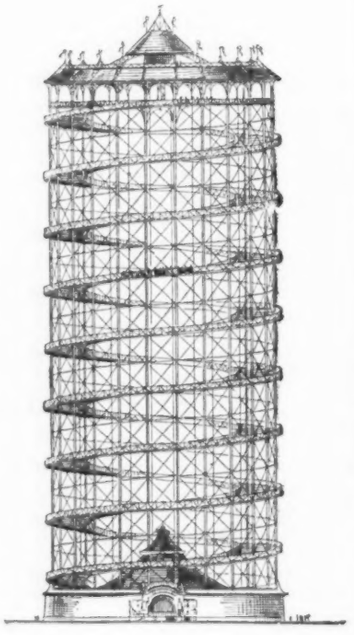
An illustration of the tower is herewith presented. The type of construction is original with Mr. Lehman, by whom the design has been patented. Standard shapes of structural material will be used exclusively. The tower will rest directly on 2000 piles, with no masonry intervening. The structure will be anchored securely to the piles, the absence of masonry enabling the anchors to be easily inspected, so as to guard against weakness in case of rust. An inclined railway will extend from the bottom to the top of the tower on the outside, which will be of truss construction, and will add to the strength of the structure, bracing it against wind storms. The inclined railway will also be used from the start to support a traveler designed and patented by Mr. Lehman, which will be used for elevating and placing construction material. The adoption of standard shapes and the use of the traveler in this way will make the erection of the tower possible in the short time specified. The diagonal braces seen in the cut, which are used to stiffen the structure, have been the subject of a very laborious investigation in order to secure the requisite number and yet avoid a superfluity. The railway is placed on the outside of the tower to enable passengers to have a clear view of the surroundings. The grade is a little less than 8 per cent., the track is a mile in length from bottom to top, and nine complete turns are taken in the ascent. An observatory is located at the top. The quantity of material to be used is from 3000 to 3500 tons of structural iron and steel, 200 tons of ornamental iron and 500,000 feet of lumber. The lumber will be used mainly in the construction of a restaurant to occupy the ground space. For a portion of the ascent hanging gardens will be arranged along the railway.

Contracts are now about being closed with the General Electric Company for the electric equipment. The cars, designed by Mr. Lehman, will be propelled by electricity in trains of five and a motor. Each car will hold ten persons. Ninety trains are expected to be in continuous operation, half of them ascending and half descending. The power station will be located outside the grounds. It is estimated that 10,000 lights, principally incandescant, will be required to properly illuminate the tower. A Siemens-Halske search-light of great power will be placed on the top. It is the intention of the company to make the tower a permanent institution and not merely a feature of the fair.

The Committee on Awards.

A special meeting of the Committee on Awards is being held this week, having been called together on the 13th. This committee is now the most important one of the National Commission. Unfortunately, its members have done nothing more than hold inconsequential meetings. As a result the entire matter of granting premiums has been in abeyance so long that quick and imperative action is demanded.

Some idea of the importance of the work devolving upon the committee may be gathered from the action of the last Congress, which appropriated $103,000 for striking off 50,000 bronze medals and 50,000 diplomas to be awarded to exhibitors. How to distribute these medals and diplomas is the problem now before Director-General Davis and the exposition management. It is conceded that the judges or jurymen, by whatever term they may be known, must be selected from both the United States and foreign countries. The time is regarded as none too long for



securing foreign judges, and there is little time to waste in selecting Americans to serve.

Just here a wide difference of opinion prevails among members of the committee as to the system which should be adopted in the appointment of persons to make awards. Commissioner John Boyd Thacher of New York is an influential member of the Committee on Awards. In his opinion experts should be appointed to pass on all exhibits of a similar character. Other members of the committee think that instead of an expert judge there should be a jury.

Director-General Davis favors the jury rather than the individual expert judge system, and he has so recommended. He says it will cost considerable more money to have juries instead of experts. The general idea is that $700,000 will be necessary to cover the expenses of the jurymen.

At the Philadelphia Centennial there were 250 jurymen. One-half of the number were American and the other half foreigners. The American judges received $600 for their services and the foreigners $1000 each, making an outlay of $200,000. The Chicago Exposition will be much larger than the Centennial and a greater expenditure is necessarily contemplated in making awards.

Director General Davis estimates the number of jurymen at 659. He thinks, however, that these jurors, outside of the live stock judges, should be paid $6 per day for every day, not exceeding 40, in which the juryman is employed in the work of examining exhibits, preparing reports, and sitting with the jury in considering the same. The idea of the Director-General in limiting the expense of the jury is indicated in his expression of belief that honor should count rather than pecuniary benefit.

Commissioner Williams has been busy for two weeks securing from the chiefs of departments the names and the post office addresses of intending exhibitors at the fair. Mr. Williams is taking this precaution in order to prevent any exhibitor being chosen for a juryman. When the Committee on Awards is fortified with the addresses of exhibitors, it will be in a position to reject any of their names in case they should be proposed for judges.

After the meeting of the committee President Palmer will make up an estimate of the expense attending the employment of jurymen and send it to President Harrison, with the request that it be recommended to Congress for an adequate appropriation.

One Building Soon to be Opened.

The Horticultural Building will be formally opened as a winter garden December 20. The finest plants that have been received are now being installed, and the great glass building is already a bower of beauty and fragrance within.

Under the immense crystal dome, that is to many the most striking feature at Jarkson Park, a miniature mountain has been constructed, and on its sides rare flowers are now in bloom. John Thorpe, of the Bureau of Floriculture, has so arranged the plants that the species present themselves in the same order as they are found upon the side of some real mountain. At the base are the representatives of the plant families that flourish in the equatorial regions; further up are the specimens often found upon the Rocky Mountains, and so they are graded until at the top are the hardy plants that grow near the snow line of all mountains.

In the pavilions of the building are now being installed the exhibits sent from American greenhouses. In the forcing house are the plants that have been received from foreign lands. Most of these are being kept so that they will bloom early next summer. In the north wings of the forcing house are some rare chrysanthemums which are expected to prove prize winners next year.

Chemists from All Lands.

Chicago is to have a big congress of chemists next year. While it is expected that a general attendance of American chemists will be secured at the congress, it is hoped that a large number of foreign colleagues will take part in the discussion of topics.

The preliminary address, setting forth what is to be done, has been issued by J. H. Long, chairman of the special committee having the meeting in charge. Mr. Long says, among other things, that two classes of sessions will be held. The first will include international scientific meetings for the discussion of questions of interests to specialists. The programmes will be arranged by the committees after they shall have received the advice and suggestions of persons interested. To these meetings all chemists and others working in scientific fields are invited.

The second will embrace popular lectures on scientific topics of general interest, to be given by men of recognized prominence in the profession. It is expected that most of these lectures, which will be open to the general public, will be given by chemists from foreign countries.

The exposition management will provide

suitable halls for the discussions, so that no expense will be entailed upon members.

Commercial Travelers' Day at the Fair.

J. C. Fenimore, S. C. Pease, John Dickey and F. A. Sells, Executive Committee of the Order of United Commercial Travelers of America, have sent to the commercial travelers of the country a circular urging the propriety of observing July 26, 1893, as commercial travelers' day. The committee addressed Chief M. P. Handy, expressing the desire of the commercial travelers that the exposition authorities designate some special day for their visit to the exposition, and Director-General Davis indicated Wednesday, July 26, as the special day to be used and set apart for the purpose. The letter sentout by the Executive Committee to the commercial travelers of the country makes a strong appeal for a thorough co-operation in the matter, and they have called a meeting of delegates from the association to be held at the Tremont House January 14 for the purpose of forming a permanent World's Fair Executive Committee.

Miscellaneous.

A large quantity of the iron girders for the intramural railway has been bolted in position on the southern end of the line near the Forestry Building. Work on the machinery foundations for the power house is nearly completed, and the work of erecting the walls of the building has been begun. The generators are now on the way, and as some of the locomotives and cars are now ready in the Eastern shops it is possible that a train may be running in three or four weeks. The conductors will be between the rails, and the girders will be used for the return circuit.

Ohio will build a mineral cabin in the Mines Building to illustrate its mineral resources. Arrangements for it were completed last week by Executive Commissioner D. J. Ryan and National Commissioner William Ritchie of the Buckeye State. The cabin will be 32 x 61 feet, and 23 feet high. It will be constructed entirely of Ohio building material, the principal elements being the mineral products of the State.

What is said to be the first incandescent lighting plant turned out of Edison's shops at Menlo Park will probably be on exhibition in the Electricity Building at the World's Fair. It is now used in lighting the steamer "Columbia," plying between San Francisco and Portland, Ore., where it was placed in position in May, 1880. It has been in satisfactory operation ever since, with no alterations.

Kentucky's highest court has decided that the act of the Legislature appropriating $100,000 for an exhibit at the World's Fair was illegally passed. The decision will knock out for the present Kentucky's appropriation, but ardent friends of the fair think a successful attempt may be made to get a bill through the Legislature now in session making an appropriation.

The total expenditures for the fair up to December 1 are reported by Treasurer Seeberger to have been $12,784,322.78.

During the Reading combine examination at Trenton, N. J., last Friday the argument closed with a speech by Attorney General Stockton, who at times became dramatic in his denunciation of the alleged conspiracy to plunder the people. He said, in conclusion, that the injunction has been wilfully and deliberately violated by the use of the Central Railroad under the agreement set out to carry its own coal, by means of the disguise of the agreement between the coal companies and by preventing legitimate competition. The question was whether the court would permit its orders to be defied with impunity; whether law or anarchy should prevail in the State of New Jersey.

Basic Steel Manufacture in Belgium.

F. Tordeur of Monceau-sur-Sambre contributes to the *Revue Universelle des Mines* a paper on the manufacture of basic Bessemer steel, in which he deals with estimates of cost, which are doubly interesting since they at the same time include data concerning the wages paid. The trade of Belgium has largely been in iron T-beams, which is now threatened by the basic steel beams, which can be manufactured to better advantage in other districts. M. Tordeur's object has been to estimate the relative cost of basic ingots in Belgium, in Luxemburg and in the Longwy district. He starts with the assumption that a plant of three 10-ton converters, taking metal direct from a blast furnace plant, could produce 150 tons in 12 hours, or in 300 working days 90,000 metric tons. He figures the labor cost of unloading raw materials as follows, per 24 hours:

	Francs.
45 tons coal at 0.10 francs	4.50
54 tons limestone at 0.16 francs	8.64
16½ tons dolomite at 0.125 francs	2.06
13 tons coke at 1.50 francs	1.95
Miscellaneous	5.00
Total	22.15
Per 12-hour turn	11.075

	France. Francs.		Charleroi, Belgium. Francs.
Chief engineers	10		7.00
Four engineers at 5 fr.	20	At 4 fr.	16.00
Totals	30		23.00
Per 12-hour turn	15.00		11.50

Labor Per 12-Hour Turn.

	Francs.		Francs.
Two boilermen at 4 fr.	8.00	At 3.50 fr.	7.00
One water tender at 4 fr.	4.00	At 3.50 fr.	7.00
Two ashmen	6.50		6.50
One cupola tender	5.00*		*4.50
One cupola helper	3.25		3.00
One engineer, pig-iron ladle	4.50		4.00
One weighmaster	3.75		3.50
First vesselman	6.00		4.50
Second vesselman	5.00		3.80
Two helpers	7.50		7.00
First ladleman	5.75		5.00
Second ladleman	5.00		4.25
Third ladleman	4.75		4.00
First pitman	6.50		5.50
Second pitman	5.50		4.75
Third pitman	5.25		4.25
Fourth pitman	5.00		4.00
Fifth pitman	4.75		4.00
Four ingot pushers	17.00		16.00
One weigher and marker	4.50		4.25
One distributor	5.00		4.50
One distributor	4.75		3.75
Two boys	4.00		4.00
One blowing engineer	5.00		4.50
One boy	2.50		2.25
One boy	2.30		2.00
One pump engineer	4.25		3.50
One engineer	4.00*		*3.00
One cinderman	4.00		3.50
Four scrappers under vessels	16.00		14.40
One greaser	3.35		3.00
One lime charger	4.50		4.00
One messenger for two foremen	2.00		1.75
One smith on samples	5.00		4.25
One helper	2.00		1.75
One blacksmith	4.50		3.80
One blacksmith's helper	3.25		3.00
One foreman refractories	8.00*		*6.00
First dolomite cupolaman	4.75		3.75
Second dolomite cupolaman	4.50		3.25
Two third dolomite cupolamen	7.00		6.00
Engineer dolomite grinding mill	4.00		3.00
Three helpers	11.25		9.00
First bottom man	6.00		4.50
Second bottom man	5.00		4.00
Two third bottom men	10.50		9.00
One heater	2.00		2.00
First dolomite brick maker	5.00		4.00
Second dolomite brickmaker	4.50		3.50
Third dolomite brickmaker	3.50		3.00
Fourth dolomite brickmaker	3.25		3.00
Turning, one	5.00		4.00
Chief mason	8.00*		*6.00
Four masons	20.00		16.75
Two helpers	7.00		6.00
Four helpers	13.00		11.00
Foreman repair gang	5.00*		*4.00
Four helpers	13.00*		*13.00
Unloading materials	11.08		11.08
Total	370.03		317.58

On the night turn the items marked with an asterisk may be omitted, which makes the totals:

	France. Fr.	Charleroi. Fr.
Day turn	370.03	317.58
Night turn	327.03	281.08
Total, 24 hours	697.06	598.66
Per ton, in 300 tons, daily product	2.33	2.00
	Cents.	Cents
Equal to per gross ton	45.6	39.2
Add Sunday maintenance	0.2	0.2

So far as the wages of individuals are concerned, the above estimate gives a safe basis for figuring. Roughly, a franc is 20 cents, so that the rates may be divided by five to get at the dollar, or rather cent rates.

The following is M. Tordeur's estimate of the cost of ingots, taking coal at 8 francs on cars at pit, and the coke at 14 francs on cars at Bracquegnies, Belgium.

Cost of Basic Ingots at Charleroi.

		Fr.	Fr.
Pig, waste, 160 to 200 kilos per ton, at		52.55	10.51
Coal, 150 to 165 kilos	at	8.50	1.40
Coke, 40 to 45 kilos	at	16.00	1.72
Dolomite, 55 to 60 kilos	at	5.00	0.30
Lime, 180 to 190 kilos	at	8.00	1.62
Coal tar, 5 to 6 kilos	at	7.00	0.42
Refractives			0.85
Ingots, molds and bases			0.95
Plumbago			0.35
Miscellaneous and repairs			1.40
Handling cars and switching			0.10
Wages			2.09
General expenses			0.50
Sinking fund			0.50
Ferromanganese (5 to 6 kilos)			1.50
Total			23.12
Deduct value of slag			3.00
Net cost of converting			20.12
Add cost of pig			52.55
Total			72 67

For Dudelange M. Tordeur figures out the first items as follows:

		Fr.	Fr.
Pig iron, waste	at	43.30	8.66
Coal	at	14.035	2.32
Coke	at	20.035	0.90
Dolomite	at	5.00	0.30
Limestone	at	11.00	2.09

To all the other items he adds 0.30 francs for higher labor, and thus reaches a net total for conversion of 20.23. It is then, however, that the cheap local pig tells for it adds only 43.30 francs, making the total cost of ingots 63.53 francs. For Longwy the net cost of conversion is 21.19 and the cost of ingots 67.79 francs. Converted into our currency per gross ton of 2240 pounds, these figures are:

	Price of pig.	Net cost of converting.	Cost of soft ingots.	Cost of beams.
Charleroi	$10.29	$3.94	$14.23	$16.78
Dudelange	8.46	3.96	12.42	15.36
Longwy	9.13	4.15	13.28	16.22

M. Tordeur states that with soaking pits and reversing engines the cost of rolling beams is 13 francs per ton, or $2.55 for the Charleroi and Liége districts, provided that the weight does not go below 30 to 40 pounds per running yard. At Dudelange and Longwy the cost is 15 francs, or $2.94. This would make beams cost only $16.78 at Charleroi, or only ¾ cent a pound, while at the other points it would be even less. If they are attainable, then the districts named could meet competition in any part of the world. We have never heard of selling figures, even at times of the fiercest competition among the great German works, which even approach them.

Postmaster General Wanamaker, in his annual report, shows that $5,000,000 have been added to the gross revenue; the deficits reduced nearly a million; money order offices increased two thirds; 82 cities given free delivery; 2790 new offices established; 16,750,000 miles of additional service; ocean mail service extended, and pneumatic tube introduced.

TIN PLATE.—I.

The Methods of Manufacture in Wales.

In the following articles it will be the writer's aim to present as succinctly as possible a view of the process of manufacture as carried on in the most modern establishments in South Wales, and although several of these will be referred to directly in the course of description, they will not be identified by name. The large tin-bar works referred to in the present article will be recognized by some, but the tin plate works forming the groundwork of the communications by none, for it is a fictitious plant, embracing the general features of several establishments. This works will be described with a little detail, but any considerable variations in practice will be noted from time to time.

The Tin Bar.

Bessemer or Siemens steel bar for the manufacture of tin plates should have the following chemical composition:

	Per cent.
Carbon	0.10 to 0.12
Silicon	under 0.06
Manganese	0.35 to 0.45
Phosphorus and Sulphur	under 0.06

In South Wales the Siemens bar costs about $1.25 per ton more than the Bessemer, and is generally quoted with that established a reputation which puts their product quite on a level with the Siemens makers. The tin-plate makers of Wales, however, in order to be independent of the tin-bar manufacturers (who have for some years formed a strong association ruling the price), have little by little added Siemens furnaces to their works and now roll their own bars. The tin works that have done this are as follows:

	Capacity per week, tons of ingots.
Leach, Flower & Co., Limited	400
Copper Miners T. P. Company, Limited	400
Landore Tin-Plate Company	350
Wm. Williams & Co.	1100
Daniel Edwards & Co.	400
Cwmfelin Tin-Plate Company	750
Wm. Gilbertson & Co.	450
Birchgrove Steel Company, Limited	480
Grovesend Tin-Plate Company	500
E. Morewood & Co.	450
J. S. Tregoning & Sons	350
P. S. Phillips	1000

It is more than doubtful whether any of these have succeeded in making, on a small scale, a cheaper bar than the large makers offer, and it is certain that few of the above plants are worked to their full capacity. The immediate effect of erecting steel plants has been very much to disturb the Steel Bar Association and to prevent their ruling the prices in future.

Whether it be Siemens or Bessemer steel, exceptional care has to be taken in the casting of the ingots, and particularly to avoid sand or ganister from entering

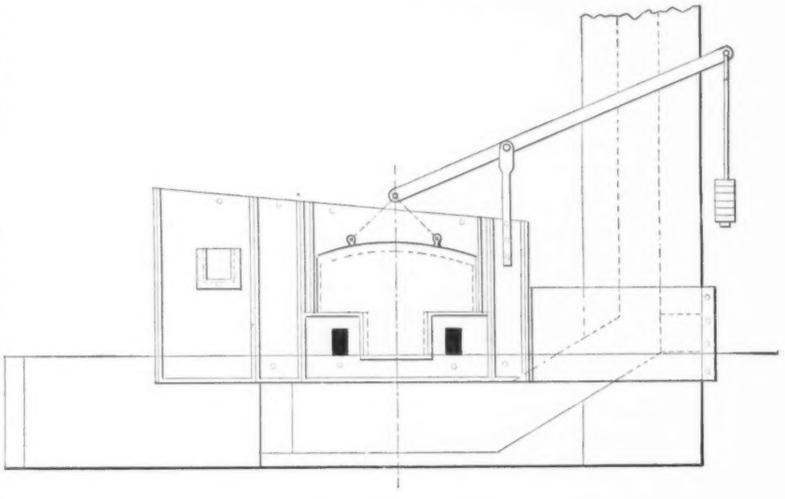


Fig. 1.—Side Elevation.

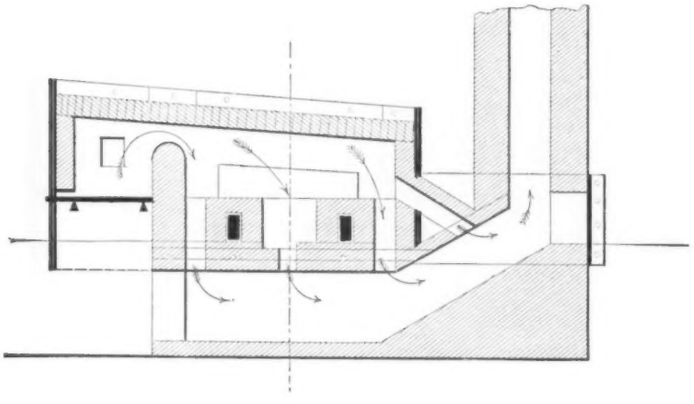


Fig. 2.—Section through A B, Fig. 3.

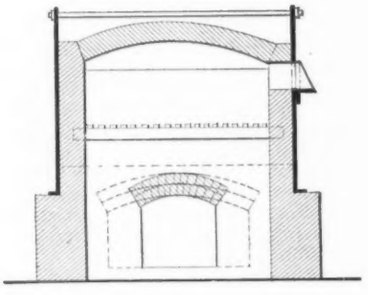


Fig. 4.—Section through C D, Fig. 3.

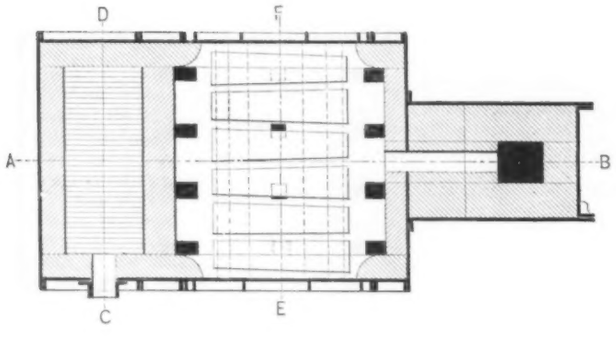


Fig. 3.—Sectional Plan.

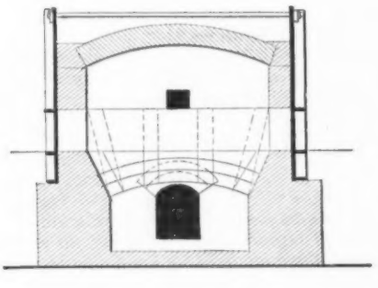


Fig. 5.—Section through E F, Fig. 3.

Tin-Plate Ingot Heating Furnace.

the metal. Small quantities of sand in a rail or bar may make little difference, but when rolled out into sheets the streak will occur in a very large number of plates. When casting the ingot a piece of thin boiler plate cut from scrap to the size is placed on the top of the ingot and the sand shoveled in. Another plate is thrown on top of the sand and the whole clamped and wedged securely down to the lugs of the ingot mold. A brick pressure, and rolled off in a 24-inch three-high train usually driven by a compound condensing engine. On one side of the roughing rolls is a steam or hydraulic lifting table. Having a very small output to deal with, it is not usual to work the bar mill full time in some of the tin works, and it is extremely doubtful whether they can turn out so cheap or so good a bar as many of the large makers. A heating furnace used at several tin works and having through the flues in the floor of the furnace, as shown by the arrows in Fig. 2, into the arched flue to either the overhead steam boiler or direct to the chimney flue. In the best instances of this design of furnace the waste gases pass into a double flue Beesley boiler, 7 feet 6 inches diameter by 24 feet long, and from thence through a Green's economizer to the stack, both boiler and economizer being superposed on every furnace and carried by columns and girders independently of the brick work walls. The other views will explain themselves.

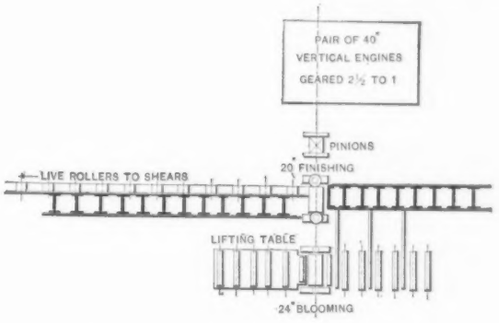


Fig. 6.--Three-High Blooming and Finishing Tin-Bar Mill for 1900-Pound Ingots.

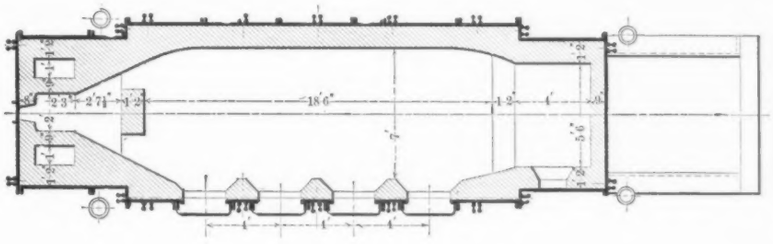


Fig. 8.—Horizontal Section.

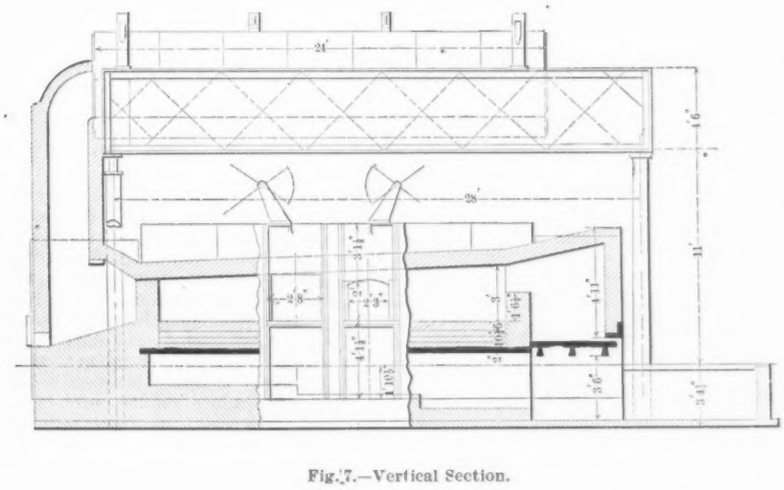


Fig. 7.—Vertical Section.

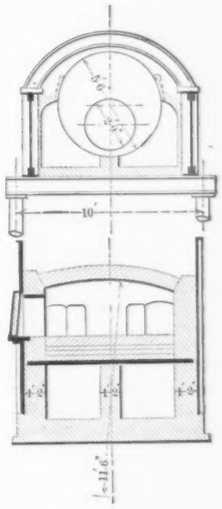


Fig. 9.—Cross Section.

Figs. 7 to 9.—Tin-Bar Heating Furnace.

Certain of the tin works, instead of buying finished bar, prefer to buy billets about 7½ inches by 3½ or 4 inches in section, and these are rolled into bars in their own works. Such billets should have the analysis already specified, and the edges should be strongly beveled, as sharp edges are apt to fin in rolling, particularly in box grooves. The sheared ends must be free of sand and overlapping, and cracks in the edges must be chipped out.

Tin-Bar Rolling.

There are several of the large iron and steel works that make a specialty of bars for the tin-plate market. The three most successful of these turn out about 1200 tons per week each, rolling off from the ingot in one heat in bars of 100 to 140 feet, and shearing into lengths of about 16 feet. By the use of magnificent machinery, labor and heat-saving appliances and rapid working, this product can be turned out at a very low price, ranging from $22.50 to $24 per ton at the present moment, which at one works leaves a profit of over 50 cents per ton. Such a plant is sketched in Fig. 6. Here there is a fast running three-high train, consisting of roughing rolls served on one side by a hydraulic lifting table, a pull-over gear and a set of finishing rolls. The train is worked by a pair of 40-inch vertical engines, which,

or cast-iron cover is sometimes used instead of this, and they will serve the same end, to keep out sand and to give a clean, straight top to the ingot. By this means the crops in the bar mill can be kept low.

The majority of the tin works enumerated above, having no heavy rolling machinery and wishing to roll off in one heat, have adopted a small ingot about 10 inches square at the butt and 7 inches at the top. Three of them, however, have 12-inch ingots. The ingots are charged into ordinary reverberatory heating furnaces, having in the best plants overhead steel boilers giving steam of 90 pounds perhaps novel features is shown in Figs. 1 (side elevation), 2 (ditto in section), 3 (sectional plan), 4 and 5 (cross section). In this furnace the ingots rest on two transverse walls having cooling boxes through their centers, and the ingot coach when charging or drawing may travel between these walls on the floor of the furnace, level with the mill floor. The coach is made with a long handle and projecting nose, and may serve for charging, drawing or turning the piece. The grate is closed with sheet-iron doors and the draft is forced by two steam jets. The flame travels over the top of the ingots and though obsolete and not economical, do their work very well. The ingots weigh about 1900 pounds and are heated for rolling off in one heat in furnaces with superposed steam boilers, giving steam of 60 pounds pressure. These boilers give all the steam required in the mill, and the total fuel is 308 pounds per ton of bars produced. One type of such furnace and single-flue boiler is shown in Figs. 7, 8 and 9, where the boiler is suspended from a pair of 4 foot 6 inch lattice girders, carrying also the brick work of side flues. A still better form is that of Beesley, which is probably well known. The fur-

nace has four charging doors, and it is bound by cast-iron plates and rail buckstaves, and the flame is kept well to the sides of the furnace by means of a center rib in the exit flue, from whence it is led by a short brick work stack into the boiler flue, which also is brick-lined for about six feet.

In regard to rolling off with initial heat, by the use of soaking pits, this has been very fully tried from time to time, and has not been found feasible. The bar loses its heat very rapidly when it becomes thin, and "soaking" is not found to give the mild heat required.

Fig. 10 is a sketch plan of another well-known bar mill. The ingots are rolled in a 33-inch reversing mill, driven by a pair of fine 40-inch engines fitted with a Bulkeley Condenser. From the cogging the piece is conveyed by live rollers to the roughing rolls, which stand in the same train as the finishing, the whole being driven by a pair of 50-inch reversing engines. Steam for these mills is largely supplied from the boilers over the heating furnaces, which blow off at 80 pounds pressure.

In rolling tin bar there are one or two things to be observed. When the bar gets thin and has only two or three more passes to make it is apt to "draw" to one side or the other, and as a good edge is one of the first things to be aimed at the guides should be made longer than usual and with a rounded "lead," so as not to cut the edge of the bar. The desirability of beveling the edge has already been referred to, and a section is given of a finished bar, half size, Fig. 11. The bar should be turned over each time for the passes in the finishing, in order to give the scale which forms an opportunity to drop off, as, if it is rolled into the bar, it not only spoils the surface but occurs again in the sheets. Water on the last two grooves is a great assistance in removing scale besides preserving the smoothness of the roll surface, and as the bar leaves the last groove it is usual to impinge jets of high-pressure water on both sides, or failing that, to dip each section of the bar as cut up and while still hot into a bosh of cold water. At this stage the surface should be perfectly smooth and glossy and the fiber silky. The steel should cut cold in the shears without hardness and softly, and it must bend cold until daylight cannot be seen through the two surfaces. The mechanical tests should show 33 tons per square inch tensile strength, 25 per cent. elongation, and 45 per cent. reduction of area at fracture.

Tin bar is generally rolled to weight—that is to say, so many pounds and ounces per foot run. It is not easy when rolling a thin bar over 100 feet in length, especially with the lighter weights, about 11 pounds per foot, to keep the exact weight, but it has to be done, because every ounce heavy adds to the waste in the tin mill very materially. It is preferable to shear rather than saw the hot bar, and such a shear must be rapid—a condition which direct-acting steam best fulfills. The shear used is shown in Figs. 12 and 13. It is made by Davy Brothers of Sheffield, and consists of a hollow shear block, A, moving vertically in a guide box, and attached by a short link to a lever B B, the longer arm of which is connected by a rod to the trunk piston of the steam cylinder C. The lever is mounted between the cheeks of a self-contained standard, which is made to rest on the girders carrying the live-rollers D from the finishing pass to the bank.

The following is the labor cost per ton, taken from the pay-sheets of a large tin-bar mill:

Heating	6.12
Reheating	3.60
Roughing	2.61
Blooming	1.50
Rolling	1.14
Catching	0.62
Dogging	1.59
Tongsing	0.49
Coaching	2.97
Hooking	0.81
Helps	3.89
Shearing	0.46
Stocking	1.74
Weighing	1.09
Greasing and cleaning	1.08
Laboring	2.40
Coal cinders, &c.	3.25
Inspecting and loading	4.80
Cogging engine	1.02
Finishing engine	1.05
Live rollers, &c., engines	1.24
Hydraulic pushers	0.63
Dragging and skidding	1.53
Fitters	0.98
Firemen	3.04
Freedman	0.45
Foremen	0.95
Total	4/3.05

The yields for the same week were (in this case the blooms were reheated):

	Tons.	Cwts.	Cwts. per ton.
Ingots charged	5,021	0	21.41
Crops	193	1	0.82
	4,827	19	20.59
Blooms made	4,690	6	
Direct loss	137	13 = 2.74 per cent.	
Blooms charged for tin bars	1,304	5	21.91
Deduct: Tons. Cwts.			
Bad bars 21 13			
Crops 18 14 —	40	7	0.67
	1,263	18	21.24
Tin bar made	1,190	10	
Direct loss	73	8 = 5.62 per cent.	

In regard to the cost of finished Siemens bars, at a certain works the ingots are at present produced for $17.65, and rolled for an additional $3.84, making a total of $21.49 per ton. The cost of rolling is divided thus:

Coaching, heating, rolling, shearing sorting and loading	$1.08
Steam and mechanics	.60
Coal (at $2.40 per ton)	1.68
Office, management and general expenses	.48
Total	$3.48

Telegraphy by Induction.

Some very interesting experiments made by W. H. Preece, the chief engineer and electrician to the Post Office, with a view to establishing telegraphic communication between lightships and the land, are thus described in London *Engineering*:

"If a cable is used in the ordinary way, trouble is experienced from the fouling of this cable with those anchoring the ships, and communication with the shore is thus liable to be interrupted just when most required. To avoid this difficulty Mr. Preece has proposed three different methods of communication which will be tested in turn. The first of these plans consists in running a line along the shore for the distance of about a mile or so, and a second wire from the stem to the stern of the ship. Currents in one of these will, of course, induce similar currents in the other, the strength of which will depend on the length of the wires, their distance apart, and the strength of the primary current. In the second of the proposed methods of communication a short line is to be suspended over the side of the vessel, so that its end may dip into the sea in the direction of the shore line, and the current will then be conveyed to the receiver instruments by conduction through the sea. The third plan consists in running out a light cable from the shore terminating in a coil near the ship, from which, however, it is quite detached, while another coil is placed on board the vessel. The two coils are intended to act on each other inductively. As yet the first method only has been put to a practical test. A line was erected along the north shore of the British Channel near Cardiff, and a second line on the island of Flatholme, which in this case did duty for the lightship. The two lines were about three miles distant from each other, yet no

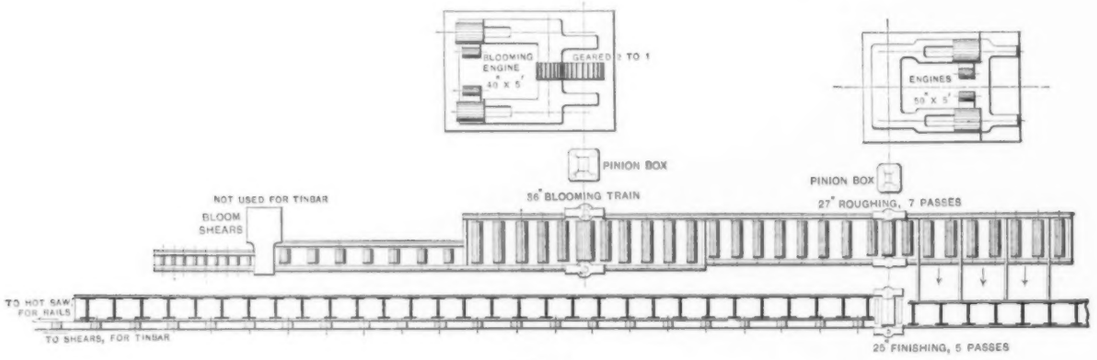


Fig. 10.

General Plan of Reversing Tin-Bar Mill for 2900-Pound Ingots.

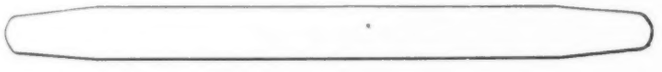


Fig. 11.—Section of Tin Bar, 14 Pounds per Foot Run, Half Size.

difficulty was experienced in communicating between the two. In principle, of course, there is nothing novel in the experiment, as for some time past it has been customary to dispatch and receive messages from moving trains in the States by similar means, one of the wires being strung along the top of the train from end to end, and in this way communication is established by induction with the wires beside the track. The distance is, of course, quite insignificant in this case compared with that between the wires in Mr. Preece's experiments. In a letter to the *Times*, Willoughby Smith describes some experiments of a similar nature which were commenced by his father before the year 1887, and have since been brought to a successful issue by himself and his assistant, W. P. Granville. These experiments have been made at the Needles, Isle of Wight. An ordinary submarine cable has been laid in Alum Bay to within 60 yards of the Needles rock, where it terminates, its end being attached to a small anchor, sunk in 5½ fathoms of water. The shore end of the cable is attached to the signaling instruments, while, to establish the circuit, a simple earth plate is immersed in the water close to the shore. On the lighthouse rock two strong bare copper wires dip into the sea about 10 yards apart, which are in connection with the signaling instruments in the lighthouse. The ends of these wires are about 60 yards distant from the end of the cable, yet signals can be sent from the rock to the shore, with only a single Léclanche cell."

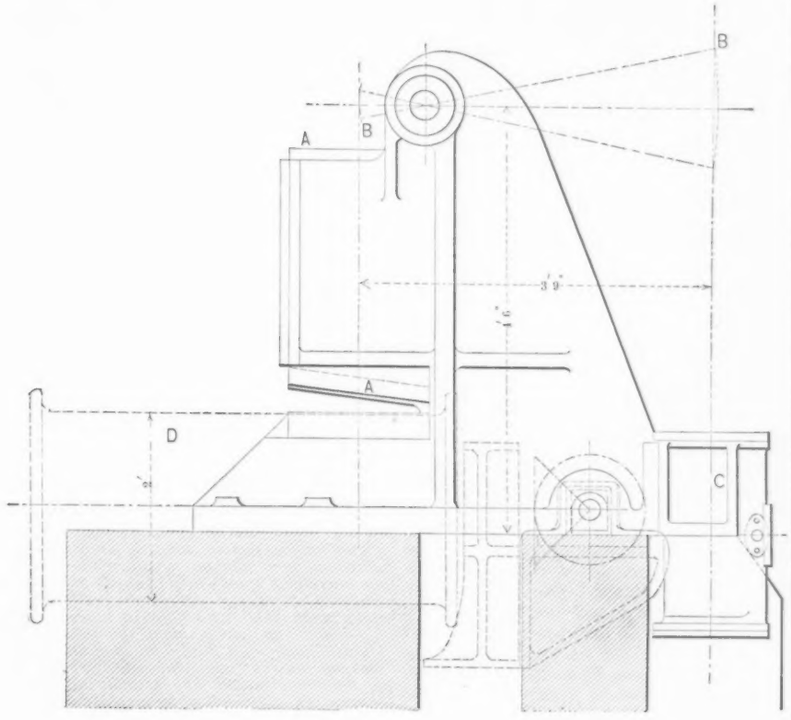


Fig. 12.—Side Elevation

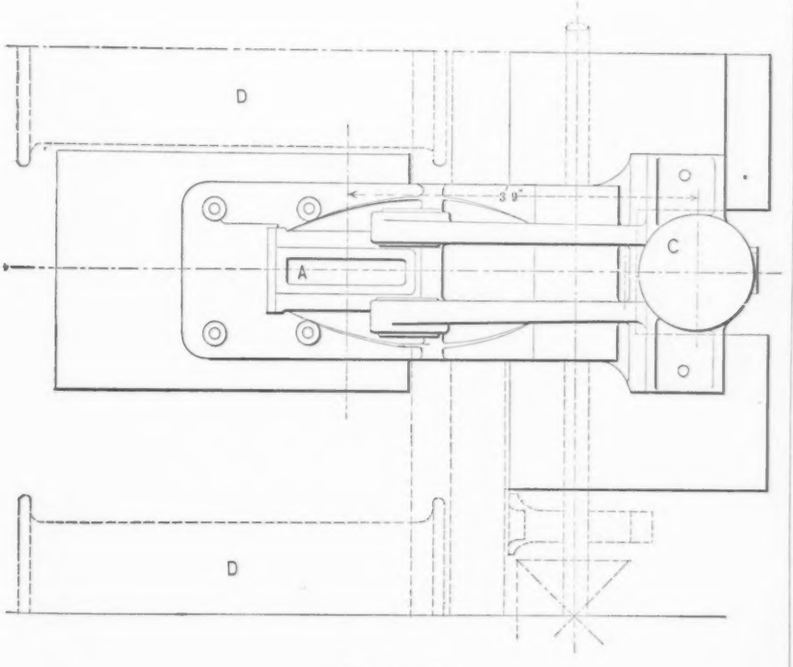


Fig. 13.—Plan.

Figs. 12 and 13.—Hot Bar Shear.

STEAMSHIP EFFICIENCY.

BY A NAVAL OFFICER.

A technical article by George Herbert Little which appeared in a recent issue of the English *Nautical Magazine* gives some interesting figures, affording a comparative view of the performance of a number of modern mail steamers as regards the relative degree of economy with which they do the work required of them.

A simple comparison of the speed of two vessels gives no real idea of the value of their performance. In order to compare them rigorously, a most difficult thing to do in a satisfactory way, it is necessary to take as a basis of comparison the greatest weight moved, the distance through which it is moved, the rate of moving and the cost of moving.

A coefficient based on all these elements may be obtained by employing the formula,

$$\frac{\sqrt[3]{D^2 \times V^3}}{K}$$

in which D is the displacement, V the speed, and K the fuel consumption. It is of course essential that the data should be accurate. Although shipbuilders and shipowners are generally averse to furnishing exact and reliable figures showing the relation between speed, power, and coal consumption, yet the information is obtainable. The following results are found, for the steamers named, by the application of the formula:

Steamer.	Coefficient of performance.
Oceanic	14,900
Arizona	11,300
Orient	11,240
Umbria and Etruria	9,467
City of Paris and City of New York	15,270
Teutonic and Majestic	15,860
Columbia	13,730
Empress of India, Empress of China, Empress of Japan	13,230
Scot	13,000
Ophir	12,760

While there has been a marked advance in the speed attained by the more recent mail steamers, it is evident from the foregoing tabular statement that this gain in speed has not been accompanied by any great increase in their efficiency as machines for the economical performance of work. It may be added that from the standpoint of economy the mail steamer of to-day compares very unfavorably with the modern "tramp" steamer of the most approved type, the coefficient of performance being as high as 22,000 for the latter.

As it will conduce to a clearer understanding of the figures presented, a few particulars drawn from various reliable sources may be added concerning these steamers. The tonnage given is gross tonnage.

The "Oceanic," of 3808 tons, gross measurement, was launched in 1870 for the White Star Line, being the pioneer vessel of the fleet belonging to this line. She may be regarded as having inaugurated a new type of ocean steamer. In her proportions and general design she differed greatly from earlier vessels and

many of the improvements in internal accommodations found in Atlantic passenger steamers originated with her. Although she was at first much criticised on account of her great length, the generally accepted type of mail steamer at present is but a modified "Oceanic." This vessel is still in active service in the Pacific.

The "Arizona," an iron steamer of 5164 tons, was added to the Guion Line in 1879 and soon proved herself to be the fastest passenger ship on the Atlantic at that time. She was a pronounced commercial success and the patronage she secured from the traveling public incited a spirit of rivalry which led to the building of a number of fine steamers by several lines.

The "Orient," an iron steamer of 5365 tons, was built in 1879 for the Orient Steam Navigation Company's line of steamers between England and Australia. The estimation in which she was held is shown by the fact that she was selected by the British Government to take out some of the principal officers of the army dispatched to Egypt in 1882, among them being H. R. H. the Duke of Connaught and his suite.

The "Etruria," of 8120 tons, and the "Umbria," of 8128 tons, two well-known single-screw steel steamers built in 1884 for the Cunard Steamship Company, were, for several years, the fastest ocean steamships afloat. While they do not make a good showing in the tabular statement as regards economical performance, they served a most important purpose in advancing the interests of their owners, the Cunard Company having been enabled to resume the payment of dividends after these steamers entered on active service. As the company had paid no dividends for the preceding three years, the practical importance of securing an additional half-knot in the speed of ocean greyhounds is apparent.

The "City of New York," built in 1888, and the "City of Paris," built in 1889, both of the Inman Line, are about to pass under the American flag. The "Majestic," of 9861 tons, and the "Teutonic," of 9686 tons, were both built in 1889 for the White Star Line. These four steamers are all well known for the remarkable transatlantic records they have made during the past two years, being the four fastest ocean steamships now under the British flag. All of them are built of steel and all have twin screws. The "City of New York" and the "City of Paris," each of 10,508 tons, are the two largest passenger steamers yet in actual service. It will be remembered that the "City of Paris," after breaking the previous transatlantic record, has exceeded even this achievement by crossing in 5 days, 14 hours, 24 minutes, or at an average speed of 20.76 knots.

The "Columbia," of 7363 tons, built in Great Britain in 1889, is under the German flag, belonging to the Hamburg-American line. She is an admirable twin-screw steel steamship.

The "Empress of India," the "Empress of China" and the "Empress of Japan," each of 5905 tons, all built in 1891, belong to the Canadian Pacific Railway Company. They are of steel, have twin screws and maintain a heavily subsidized service across the Pacific, coming in active competition with a line under the American flag. They have an average sea speed of about 16½ knots.

The "Scot," a steel twin screw steamer of 6844 tons, built in 1891, is the latest, largest and finest addition to the fleet of the Union Steamship Company, and is engaged in the mail service between England and South Africa. Originally designed for a maximum speed of 18½ knots, she made on trial 19¼ knots and has established anew the record between Southampton and Cape Town, having made the voyage in a little over 15 days at an average speed of 16.6 knots for the whole trip. A marked feature of this vessel is the unusually great hight of her smoke pipes, 120 feet above the furnace grate bars. She is the largest and most powerful steamer in the South African trade.

The "Ophir," built in 1891, is a fine steel twin-screw steamer of 6910 tons. She belongs to the same line and is engaged in the same service as the "Orient."

Such steamers as these, owing to their achievements in point of speed and the other advantages they offer, secure generous patronage for the lines with which they are connected, and it may, therefore, be considered that they fulfill successfully their chief mission although they do not perform their work with any great degree of economy.

There is, however, another class of ocean steamer already mentioned, which does do its work economically and in a manner demonstrating the possession of engines of great mechanical excellence and smoothness of finish. This is the class, which, being designed for the carrying of cargo over long distances, comes in direct competition with the sailing vessel and must, therefore, do its work cheaply or fail to secure employment. As illustrating what can be done by some of the best of these vessels, data published about a year ago, with reference to the "Tekoa," may be recalled. This vessel, which belongs to the New Zealand Shipping Company, is a steel steamer of 4050 tons gross measurement, and has a deadweight capacity of 6250 tons. She was built in 1890 to carry cargo between England and Australasia and on her speed trial showed 11½ knots. On her outward voyage the "Tekoa" ran from Teneriffe to Auckland, 12,059 nautical miles, without a stop and without slacking speed; this was accomplished at an average rate of 10 knots, with a daily coal consumption of only 21¼ tons for all purposes. In other words, as was pointed out at the time by the *Marine Engineer*, of London, the "Tekoa" transported a ton 1 mile by burning ½ ounce of coal. While this trip is not to be regarded as establishing a record, and was certainly not the longest continued steaming ever done, it does afford a striking instance of what some of the modern freight steamers are capable of doing.

As showing that excellence of results in engine building for transoceanic merchant steamers of large size is achieved in the United States also, the case of the "Peru," a steel steamer recently built on the Pacific coast for the Pacific Mail Steamship Company may be cited. According to the newspaper accounts published lately, the "Peru," on her maiden voyage from San Francisco to Yokohama, made the entire distance without her engines being stopped. The return trip was not only made without slowing or stopping once, but was the shortest ever made by an American-built ship from Yokohama to San Francisco, the time of passage having been 13 days 19 hours 22 minutes.

The American Steel Barge Company at Duluth built during the past season six steamships, four barges and one tug. It is expected that during the coming winter all previous records in shipbuilding will be broken.

Judge Wallace of the United States Court has handed down a decision in favor of the plaintiff in the patent infringement case of the Syracuse, N. Y., Chilled Plow Company against the Clipper Plow Company of Elmira, N. Y. The action was brought for an injunction restraining the defendant from manufacturing and selling a reversible plow pointer, which they claim is an infringement on patents held by them and secured in 1879. The case has been in court two years.

The Illinois Steel Company's Interstate Commerce Suit.

Last June Special Agent Kretschmar of the Interstate Commerce Commission notified the commission that there were informal complaints among shippers that the Illinois Steel Company were deriving illegal advantage over other shippers by the device of incorporating under separate names the railroad property about their five works. The five roads thus created were the Calumet & Blue Island, the Chicago & Southeastern, the Chicago & Kenosha, the Milwaukee, Bay View & Chicago, and the Joliet & Blue Island.

The commission endeavored to find out whether the Illinois Steel Company owned the roads or a majority of the stock in them.

William G. Brunson, J. S. Keefe, and W. R. Stirling, officers of the steel company, declined to answer questions or to produce books required by the commission. District-Attorney Milchrist applied to Judge Gresham of the United States Circuit Court in Chicago for a rule compelling the witnesses to obey the commission. The petition was argued September 6 by Mr. Milchrist for the Government and Judge Trumbull for the witnesses, and the case was taken under advisement.

Judge Gresham's decision, which was rendered on the 8th inst., in brief is as follows:

The Interstate Commerce Commission is an administrative and not a judicial body, and the important question presented for determination is, Can the process of this court be exercised in aid of an investigation before such a tribunal? The jurisdiction of the courts of the United States is limited, and it is not competent for Congress to confer upon them authority which is not strictly judicial and clearly within the grant found in the third article of the Constitution. The first section of that article declares that the judicial power of the United States shall be vested in one Supreme Court and such inferior courts as Congress may from time to time establish, and the second section declares "that the judicial power shall extend to all cases in law and equity arising under the Constitution, the laws of the United States, and treaties made or which shall be made under their authority, to all cases affecting ambassadors, other public ministers and consuls, to all cases of admiralty and maritime jurisdiction, to controversies to which the United States shall be a party," &c.

The application of an administrative body (and we are now considering such an application) to a judicial tribunal for the exercise of its functions in aid of the execution of non-judicial duties does not make a "case" or "controversy" upon which judicial power can be brought to bear. It is not a controversy between adverse parties for adjudication. It is not a contention between litigants "brought before a court by regular proceedings for the protection or enforcement of rights or the prevention, redress, or punishment of wrongs." The commission was engaged in investigating charges of unlawful discrimination against certain railroad companies and this court is simply asked to aid that body in obtaining evidence, which, it is claimed, will tend to support the charge. The subject of the inquiry is not brought here for adjudication and this court can exercise no discretion beyond deciding whether the evidence demanded is pertinent to the charge and within the general scope of the twelfth section of the act. Congress cannot thus make the Judicial Department the mere adjunct or instrument of either of the other departments of the Government.

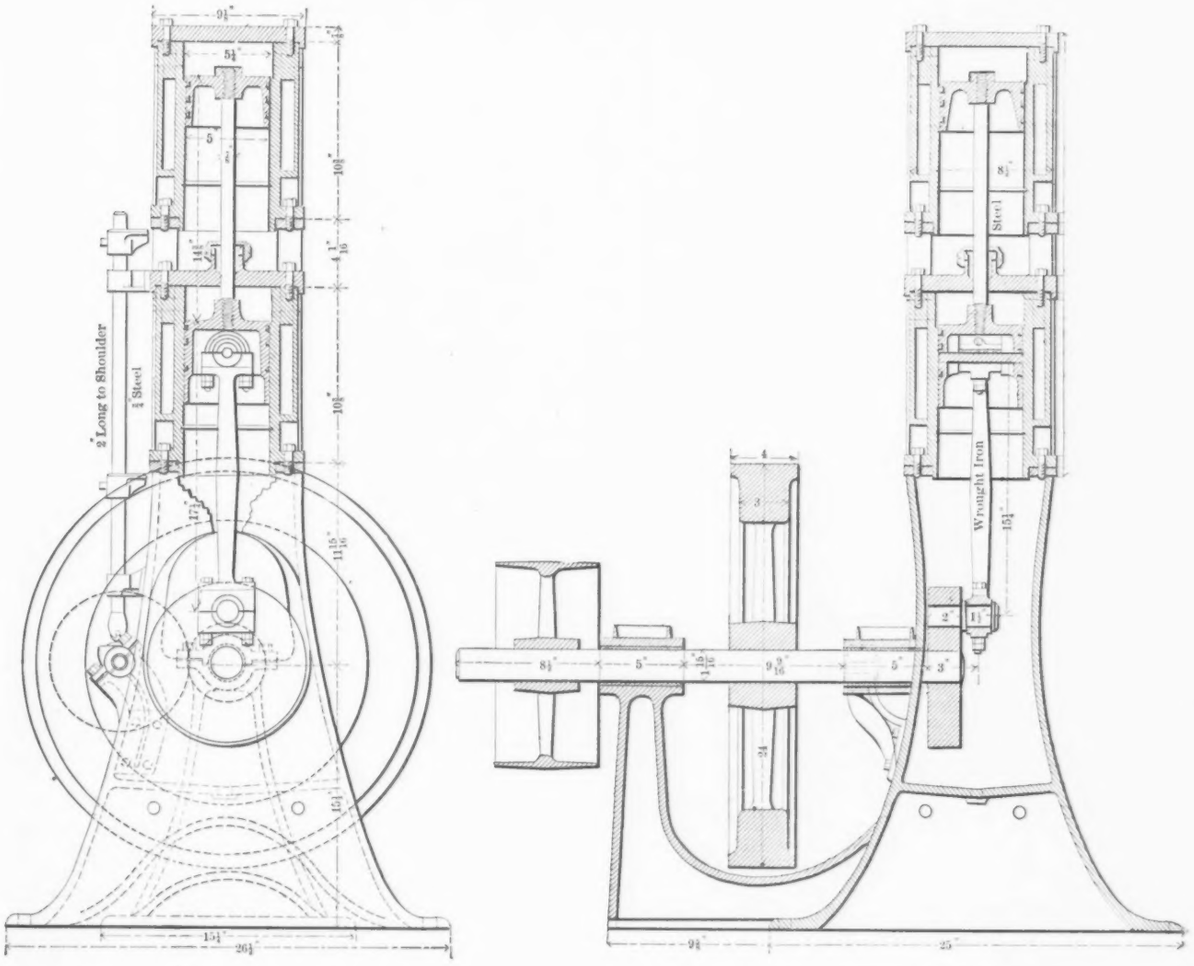
Undoubtedly Congress may confer upon a non-judicial body authority to obtain information necessary for legitimate governmental purposes and make refusal to appear and testify before it touching matters pertinent to any authorized inquiry an offense punishable by the courts, subject, however, to the privilege of witnesses to make no disclosures which might tend to incriminate them or subject them to penalities or forfeitures. The prosecution for an action for violation of such a statute would clearly be an original suit or controversy between parties within the meaning of the constitution, and not a mere application like the present one for the exercise of the judicial power in aid of a non-judicial body. So much of section 12 as authorizes or requires the courts to use their powers in aid of inquiries before the Interstate Commerce Commission is unconstitutional and void, and the application is dismissed for want of jurisdiction to entertain it.

As the issue thus made before Judge Gresham was decided by all parties to be a test case of the power of the commission to secure testimony, this would seem to end the attempt to prove that the Illinois Steel Company had acted unlawfully.

The Hicks Gas Engine.

This engine, as will be seen from the drawings, employs two cylinders arranged tandem. The valves are so arranged and timed in their movements that the two cylinders work alternately, the operation being as follows: The gas throttle valve being opened, the fly wheel is turned once or twice by hand when the engine will start into full operation. At the first downward movement of the piston the explosive mixture will be drawn into one of the cylinders, say the upper one, through the valves, which then close and prevent its flowing back into the pipe as the pistons make their up stroke, while the compound in the upper cylinder is being compressed in the upper end of the cylinder, the crank shaft passes its upper center, the discharge in the upper cylinder is exploded and the expanding air and gases drive the piston down rapidly and start the engine. When the piston has completed its downward movement and starts upward, the upper escape valve is opened and the burnt gases in the cylinder allowed to escape. On its next downward movement, the piston again draws in a fresh charge of the compound which is compressed and exploded as before. When the pistons are descending under the impulse of the explosion in the upper cylinder, the lower cylinder is drawing in its charge of the compound to be compressed and exploded, while the upper cylinder is being cleared of the burnt gases and recharged, the two cylinders thus working alternately.

Many advantages are claimed for this particular construction and arrangement of parts. Every down stroke of the piston delivers power to the shaft, so that the engine is twice as powerful as one in which every other down stroke only is a power stroke; and further, all the power of the piston tends to force the shaft onto the solid parts of its bearing, and thus relieve the cap entirely of wear. The valves admitting the compound to the cylinders are automatic, and being always closed on their seats when combustion is going on, they remain perfectly clean and require no attention or occasional scraping. The amount of the compound admitted to the cylinder is controlled by the governor, as in steam engines, and the power regulated to as great a nicety as with steam. This engine is built by the Hicks Gas Engine Company of Cleveland, Ohio.



Vertical Section at Right Angles to Shaft. *Vertical Section Parallel with Shaft.*

THE HICKS GAS ENGINE.

Among the subjects awaiting settlement at the approaching session of the new Congress are the reconstruction of the tariff and the modification of our internal revenue system, a reduction of the public expenditures, a revision of the emigration laws, and a reversal of our silver policy.

The Foundrymen's Association.

At the last meeting of the Foundrymen's Association of Philadelphia the principal business was the delivery of an address by John Birkinbine of Philadelphia. We make the following extracts from it:

Perhaps as an engineer I am expected to say something concerning the strength and adaptability of iron, as to specifications, in which those of us who design or plan work show you how much more we know about mixing metals and casting them than you who devote all your time to this specialty. If I should attempt this I should demonstrate another value in your organization, for in any discussion upon some of the specifications which are issued for material, I fear the specifications would suffer.

Personally I doubt the propriety of an engineer generally prescribing the material of which a casting is to be made, the method of producing it and the tests to which it is to be subjected. There are cases where the chemical composition, or the special grade of iron entering into castings, or the details of their manufacture, should be designated, but in most instances it is better for an engineer to confine his requirements to the character of the casting and the tests which the metal must stand. I remember some years ago an instance where some water pipes were supplied by a reputable firm. The appearance of the pipes was satisfactory,

they stood the hammer test under the required hydrostatic pressure, but a broken pipe exhibited a honeycombed structure —the manufacturer was accused of using poor material—the inspector was assailed for being in collusion with the manufacturer, and the engineer was criticised for failing to specify just what iron was to be used. An investigation showed that the iron used was good, test pieces exhibited ample strength and drilled easily; pipes which withstood extraordinary pressure were then broken, and the same defect was still found. The cause was claimed to be that the blacking was too good, or applied too freely, preventing the occluded gases from escaping. Now, a specification tabooing cinder pig, or specifying certain irons, would not have overcome the trouble, but the lesson learned was not lost on the manufacturer.

Officers of the United States Government are considered as being extreme in their specifications, and in the matter of guns they indicate not only the metal to be used, but the mode of manufacture. Whether the Government engineers or the foundry was at fault in the instance about to be quoted I do not know, but some years ago a number of cast cannon were brought from Fort Delaware and sold as scrap. To admit of these being cut on a lathe so as to be melted, it was necessary to remove the trunnions. To the surprise of the purchaser, he found that these trunnions, 10 inches in diameter, could be broken off with a few sledge blows, the fracture revealing the fact that in casting the cannon thin plates of wrought iron with a series of holes punched in them had been placed over the openings of the trunnions to keep the slag out. The result of this was that the trunnion was attached to the body of the gun chiefly by the metal which filled the holes in the thin plates, and the gunner who discharged such a gun ran more risk than the man who stood in front of it.

Do not misunderstand me as wanting in appreciation of the value of a knowledge of the chemical composition or physical characteristics of different pig irons. On the contrary, I believe that the more a foundryman or an engineer knows of these the better is he equipped for his work. It is not very long ago that but limited attention was given to the chemical constituents of iron, different makes being rated by the color and character of the fractures, the sound of the pig when struck, or by certain bending tests, either hot or cold, after the iron had been made into a bloom or bar. Some of these apparently crude tests are much used to-day, and it is remarkable how close a determination can be made by a person well versed in examining pig or manufactured iron.

As the chemical reaction which takes place in a blast furnace when smelting ores came to be better understood, and as the development of our steel industry acquainted us with the influence which fractions of 1 per cent. of carbon, phosphorus, silicon, sulphur, manganese, &c., have upon metals, the necessity for a chemical laboratory at or within easy reach of blast furnaces was recognized, and as the requirements of the steel works demanded specific compositions of iron from the furnace, the furnace manager, in turn, required from the miner ores of known composition, and the laboratory is now not an unusual accompaniment of a mining enterprise. So the necessity of producing steel of certain compositions has had the effect of demanding somewhat similar conditions from iron founders; and the critical investigations by chemical analysis of the character of pig iron used, accompanied by physical tests, and even miscroscopic examinations, are often associated with a foundryman's duties; the tendency of the times is to require more of this. As a rule the casting of metals is not appreciated as a business requiring a wonderful amount of ability, but on the other hand, I claim that a careful investigation will demonstrate that in the iron founding alone there is opportunity for the use of the highest mechanical skill, the best efforts of economic management, and in many cases ability of a high order in the fine arts. It was my privilege lately to see a single casting, part of a hydraulic press, for the production of which it was necessary to melt and pour at one time 150 tons of iron, and also about the same time to examine some small castings of animals, which were done in such a style as to fit them for exhibition in any parlor. Then, too, the intricacies of patterns which some of our machine and engine castings required show that a master mind was necessary to mold and successfully pour them, so that they do not break by shrinkage, and so that blow holes are so distributed that they do not show in subsequent manipulations.

The production and sale of cast-iron water and gas pipe, of chilled car wheels and chilled plows, at a price so little in advance of that of the iron entering into their composition, will, if analyzed, show that they each exhibit triumphs of mechanical genius and good management, when the narrow limits and severe tests of the specifications are considered. The American chilled car wheel is a most noticeable instance of this. With its hub soft enough to be bored, its tread as hard as the founders can make it, its chill uniform, its periphery forming a true circle, and the wheel evenly balanced throughout, it offers a problem to a novice which, when taken in connection with the drop test, the mileage requirements and the low price paid for these wheels, would appear discouraging. A. Whitney & Sons published the results of 10,000 wheels furnished by that firm in one year, and tested by the R. W. Hunt Bureau of Chicago. "Out of the 10,000 the extreme variation in 8690 was only $\frac{1}{8}$ inch in circumference, or $\frac{1}{24}$ inch in diameter, and in 881 more it was only $\frac{1}{4}$ inch in circumference, or $\frac{1}{12}$ inch in diameter. Tested by a true ring resting on the cone of the wheel, not one was found with a variation of more than $\frac{1}{32}$ inch from the ring at any point."

Such records are not accidental; they show forethought and painstaking, which entitle the manufacturers to rank among those making great advances. Were we to follow the same line of thought through the chilled plow manufacture, the pipe works, the architectural iron foundry, the producers of machine and engine castings, the stove founders and the manufacturers of malleable castings, there would be similar instances to record. No farmer can now claim that it was too costly to raise crops on account of the expense of his plow. If the foundrymen by their achievements are able to produce such results, surely it is not pretentious in them to form an organization, and this organization should be able to accomplish a great deal for its members. I repeat, such an organization as the Foundrymen's Association cannot but be of service to the trade; but some may say, What real good can it do, &c., unless it adjusts prices? To my mind attempting to control prices is the surest way of doing the least good. Few organizations with such a purpose are long lived; they usually fracture from within.

At the same meeting of the Association sample castings of various kinds were exhibited and numbered and bids made upon them by a number of members. The list of the bids will be read at the next meeting.

Viewed collectively, Europe now spends more than $1,000,000,000 annually on her fighting force, which already amounts to 12,500,000. The blighting influence of such a strained condition is felt in every department of trade and industry.

Endurance of Tempered Steel.

W. A. Doble of San Francisco has published the results of a series of experiments to ascertain the effect of blows systematically given on the end of sections of steel bars, set in an anvil or heavy casting, the sledges being swung by men striking in time and with full force.

The fourth column relates to a degree of temper at present adopted by the A. Doble Company, as that of highest resistance, and which is not easy to define, further than it is a mean between the malleable and friable state of the steel, and belongs in what is technically called "blue tempers."

The scheme of such trials was suggested by the former rapid destruction of various implements made by the company, such as wedges, drifts, drills, chisels, and so on, due to their being frayed, split and upset at the top, also to determine the effect upon hammers and sledges as the implements struck were increased in hardness.

	Steel Forged, not tempered.	Mild Temper.	Standard Temper of Doble Co.
Size of test plug..	1½ in. sq	1½ in. sq.	1½ in. sq.
Duration of test in hours....	1	4	4
Numberof sledges	3	3	3
Number of blows	10 pounds	12 pounds	12 pounds
Original length..	5,000	5,000	19,000
Present length..	5 15/32	5 7/32	5 37/64
Reduction in length.....	5 7/32 8/32	5 2/32 5/32	5 36/64 1/64

Remarks.—Steel forged, not tempered, head spread to average, 2⅛ round. Mild temper, head spread to average, 1⅞ round. Standard temper of the A. Doble Company head did not spread; apparently as good as before tested.

The faces of the striking sledges polished and the grinding marks were not obliterated. The sledges were used about 7 hours each. These pieces were forged from 1½ inch square steel, but the heads were swaged to 1¼ inch round, which reduced the area subject to the force of the blows.

Reports from the Naugatuck Valley show that stocks of copper among consumers are below the normal. Considerable buying is expected from that source. A very important factor in the copper market, and one usually greatly underrated, is the condition of the business of manufacturers. It is an open secret that the so-called wire pool has been a dead letter for some time. As evidence of this fact may be cited the current price of copper wire, which is from 13 cents to 13½ cents per pound. The raw metal sells for 12¼ cents. Thus it will be seen that something is radically wrong. This condition of affairs has ruled for some time, and it is known that manufacturers are heartily sick of cut-throat business. We understand that an effort will soon be made to rehabilitate the pool. The condition of the copper-sheet business is even worse than that of the wire. If one is adjusted it is likely that the other will be also.

The lake commerce of the port of Buffalo during the season now closed has been unprecedented, the receipts of grain having amounted to 129,000,000 bushels, or 175,505,000 bushels if flour receipts are included, which is an increase of 60,000,000 bushels in the last two years. These figures indicate the rapid growth of the Northwest. Canal shipments from Buffalo eastward were 2,000,000 bushels less, but profits were somewhat larger.

A New Recording Pressure Gauge.

At the recent meeting of the American Society of Mechanical Engineers, Prof. W. H. Bristol of Stevens Institute of Technology described a new recording pressure gauge he had designed for extremely low ranges of pressure. Owing to the interest manifested in the paper we here publish it in full, referring the reader to our issue of last week for additional explanations by Professor Bristol and points brought out in the discussion :

Since describing and exhibiting a sinuous tube recording pressure gauge at the New York meeting of the society in November, 1889, many of the instruments have been placed in successful operation ; but it has been found impracticable to make gauges on the flattened sinuous tube principle which would be sufficiently sensitive to register extremely low ranges or variations of pressure. Such are the variations due to a difference of $\frac{1}{16}$ inch head of water, as in the case of illuminating gas in street mains, where the total range rarely exceeds 2 ounces per square inch, or its equivalent, 4 inches head of water. For such extremely low pressure, it was necessary to offer a very large area for it to act against. This has been accomplished by employing a series of corrugated diaphragms, A, placed in cross section in Fig. 3. The diaphragms are arranged in pairs and joined, as shown, with a continuous opening through the line of centers of the different pairs, thus permitting the pressure to exert itself simultaneously on the interior of every pair, the effect of variations being to produce an elongation of the whole.

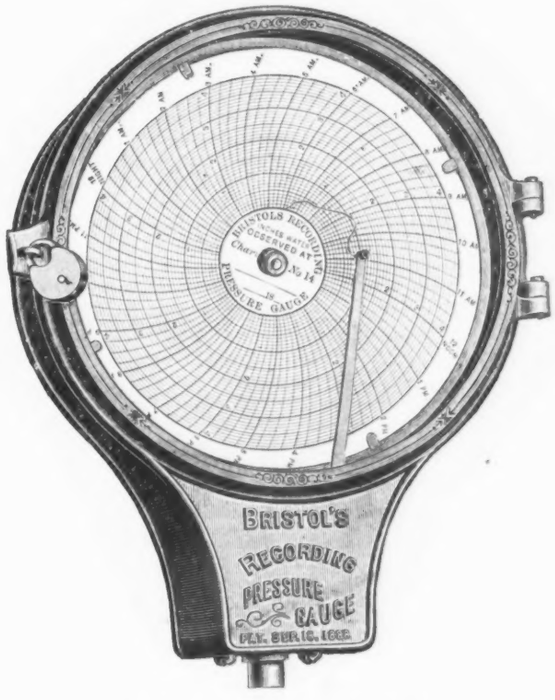


Fig. 1.—Recording Pressure Gauge.

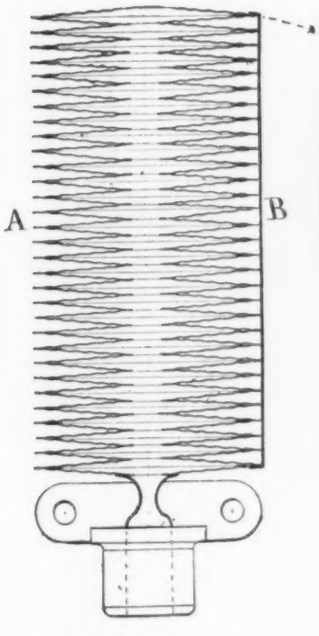


Fig. 3.—Corrugated Diaphragms.

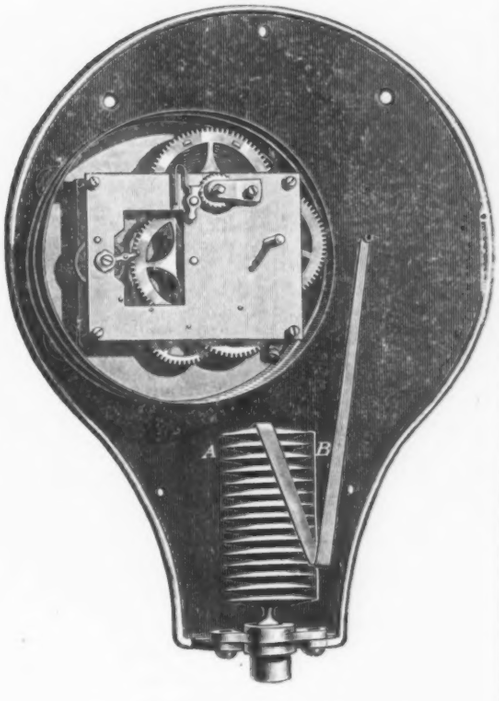


Fig. 2.—Gauge with Chart Removed.

A NEW RECORDING PRESSURE GAUGE.

This arrangement of diaphragms is employed in the construction of certain self-registering barometers, the small motion of the diaphragms being made available by a train of multiplying mechanism. In the gauge now exhibited, the disadvantage of using multiplying devices is entirely obviated by simply securing a flexible strip, B, along the edges of the diaphragm tube, as it might be called. The effect of applying the flexible strip is twofold: 1, it stiffens the diaphragm tube as a whole; and 2, it performs the most important function of resisting the tendency of the pressure to elongate it, which naturally results in producing a greatly multiplied lateral motion.

As in the sinuous tube, the motion thus produced by variations of pressure is ample for directly indicating or recording in connection with a moving chart. By the use of a large number of diaphragms, as shown, it is evident that the change of form of each individual member is very slight for complete range of pressure. It follows that none of the diaphragms will be strained to their elastic limit, and all danger of the gauge taking permanent sets will be avoided. In the application of the diaphragm tube to a recording gauge it is mounted on a back as shown in Fig. 2.

A recording pen is attached directly to the end of the diaphragm tube, and a clock is provided, as shown, timed to revolve a dial in the plane of movement of the pen once in 24 hours.

In Fig. 1 the gauge is shown complete, with chart, ready for application. The small graduations in the chart indicate tenths of inches head of water.

This form of tube is not limited to recording gauges for light pressures only, as it could be equally well adapted for all ranges if the diaphragms are properly proportioned as to size and thickness of metal.

There are other practical applications of this form of tube, if constructed on a large scale, as considerable motion and power could be developed; sufficient, it is believed, to operate directly, without intervening mechanism, regulators, dampers, valves, and especially that class of automatic devices in which pressure is the initial motive power.

The Sebenius Method of Removing Blow Holes in Steel.—During the last 18 months there has been in use at the Nykroppa Bessemer Works in Sweden an apparatus, designed by J. L. Sebenius, for the prevention of the blow holes in steel. Recently a second apparatus of the same character has been put in at the Nykroppa open-hearth plant. The molds in which the steel is poured are vertically suspended on an apparatus called a rotator in such a way that the molds may occupy a radial and a horizontal position after the steel has been poured and the rotator has been placed in rapid motion. While it is solidifying the steel is thus subjected to heavy pressure, which rapidly increases as the speed of rotation is augmented. It

is claimed that the gas escapes from the open end of the molds, which turn toward the center of the rotator. Twelve-inch ingots, 40 inches long, have been treated in this manner. It is claimed that it also lessens the danger of the irregularities in the carbon contents of different parts of the ingots, and that the apparatus is large enough for a modern crucible steel plant and costs only about $2000 to build.

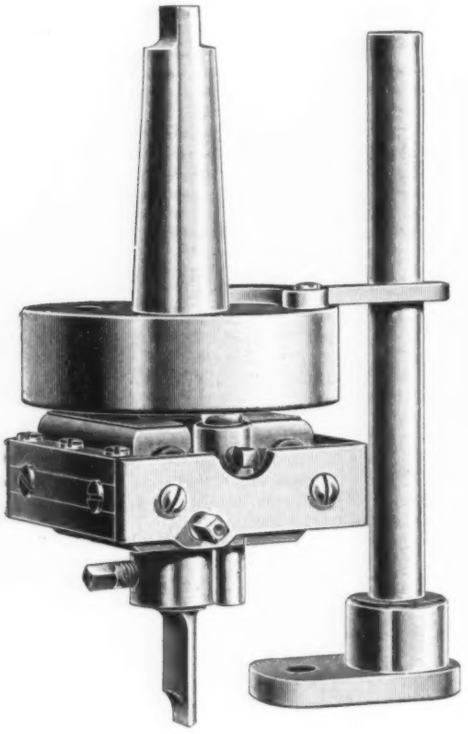


Fig. 1.—The Drill Assembled.

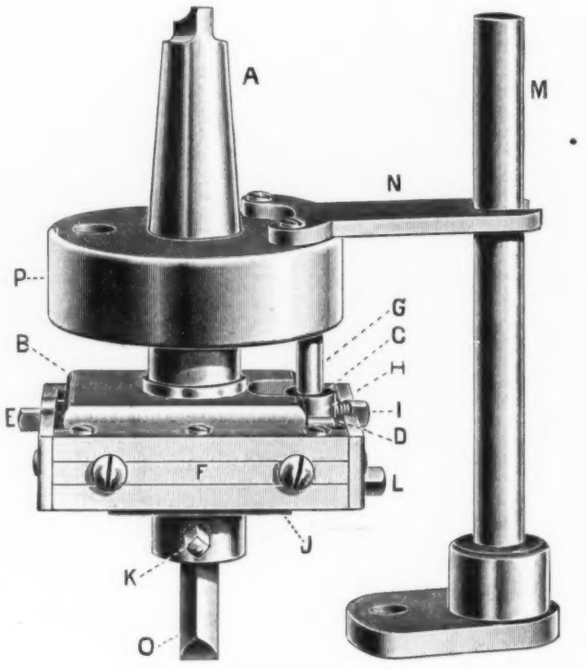


Fig. 2.—Drill with Cam P Raised to Show Parts.

The Geometric Boring and Turning Tool.

This tool is intended to be used as an attachment to a drill press, and is for boring any geometrical figure, such as round, square, hexagon, octagon, triangle, diamond, star, oval, half round, &c. It can be fitted to bore any shape of hole having straight sides or curved sides, or both. It can be attached to a lathe for turning the perimeter of any geometrical shape or figure.

The tool can be used to bore square and round, or hexagon and round, without change of parts. For counterboring round holes it is very useful, as the cutter can be adjusted from the center to bore any variation of size up to 3 inches instantly.

Fig. 1 represents the drill with all the parts properly adjusted; in Fig. 2 the cam P is raised in order to give a better view of the parts; Fig. 3 is a view of the under side of the tool; Fig. 4 shows the cam P detached, while the outline drawings on the opposite page show some of the forms made by the tool.

The work is first prepared by boring a round hole, in the ordinary way, nearly the size of the square or hexagon hole desired. The work is securely fastened to the table so that it cannot be moved by the action of the drill. The shank A is tapered to fit the drill spindle of the machine. It is of the utmost importance that there should be no play to the drill spindle in its bearings, and that the table on which the work is clamped also has no play, for any vibration in the spindle or table will prevent perfect work. In round boring a poor drill spindle is not so noticeable, as the pressure on the work by the tool is vertical; but in boring square holes and other cornered holes with this attachment the pressure is eccentric and the tool makes considerable leverage. Hence, if the drill spindle has play, it will show in the work.

The cam-arm stand M is attached to the table and the cam arm N is engaged with it. The cams P are marked either "square" or "hexagon," and also with the sizes of holes they are intended for. There are five grooves or steps in each cam. The lower groove is for $\frac{5}{8}$ inch in one cam or 1 inch in the other; the next groove above is for one size larger, and so on. The drill cutter is placed in the spindle socket, with its edge pointing to the front or cam pin end of the tool, and is held in position by the screw K.

The tool being securely attached and the drill cutter in proper position, we will now describe the adjustment of the tool to bore a $1\frac{1}{4}$-inch square hole with a $\frac{5}{8}$ inch drill, reference being had to Fig. 2. On the top and near the rear end of the slide bed F is a zero mark. The slide bed is adjusted by the screw E to bring the rear edge of the carrier B in line with this mark; this frees the pin and roll G, so that by loosening the screw I it can be raised or lowered. The cam roll is then adjusted to the groove marked $1\frac{1}{4}$ square on the cam, and the set screw I holds the cam pin and roll in position. The carrier screw E is released to bring the cam roll to bear against the groove in the cam. In the rear end of the plate, below the screw E,

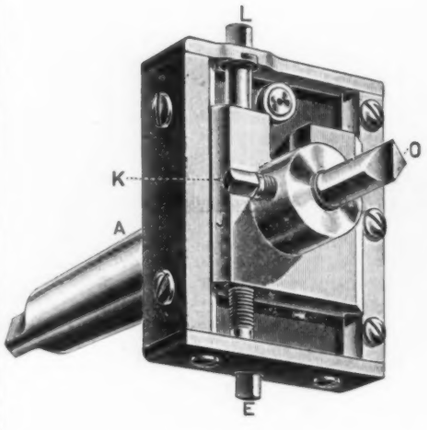


Fig. 3.—View of Under Side.

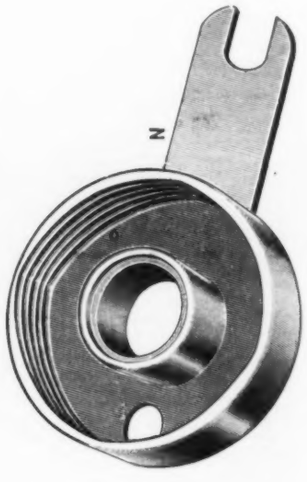
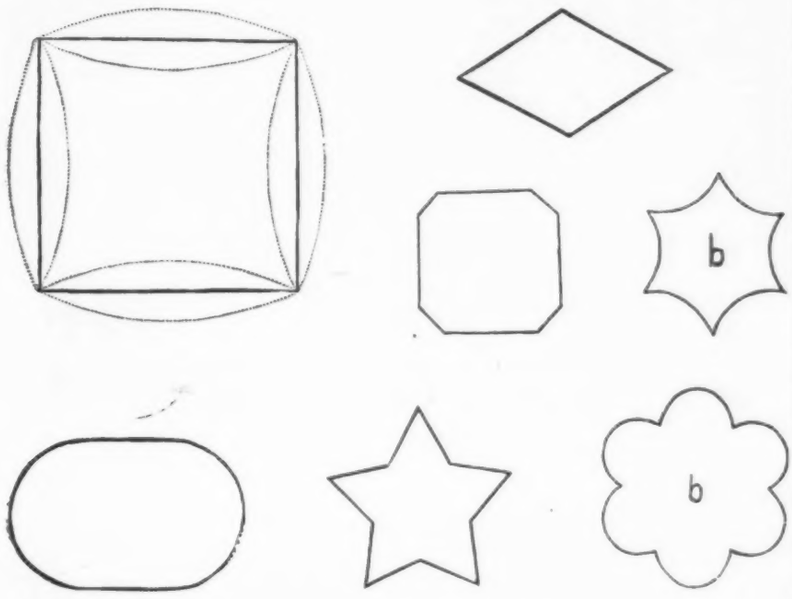


Fig. 4.—The Cam Detached.

THE GEOMETRIC BORING AND TURNING TOOL.

is a hole to receive the gauge, which is pushed through this hole against the drill-holder slide block J and adjusted by the screw L to the graduated mark 1¼. The tool now being ready for a 1¼-inch square hole, the drill spindle is lowered by hand until the drill cutter touches the work, when one revolution is to be made by hand to see if the tool has been correctly adjusted.

The work done by this tool is exceedingly accurate; all corners are sharp and clean cut. There is practically no limit to the range of sizes of holes or shapes. The Geometric Drill Company, Knickerbocker Building, Philadelphia, the makers of this tool, will also manufacture attachments and machines for boring and turning all irregular shapes in wood, marble, metals and any substances that are cut with tools. Among others this attachment is in use by the United States Government, Pratt & Whitney, Boston Rubber Boot & Shoe Company, Scotland Shipyard, Glasgow; Smith & Wesson and Hartford Cycle Company.



Various Shapes Made by the Tool.

THE GEOMETRIC BORING AND TURNING TOOL.

The Turrets of the Battle Ships.

The report of Secretary Tracy of the Navy contains the following interesting review of the considerations:

Certain important considerations connected chiefly with the recent development of ordnance have led the Department to make a change in the form of turrets of several of the ships now under construction, including the three battle ships and the "New York" and "Monterey."

The original armored turret was an upright revolving cylinder, rising from the ship's deck and working in the later forms upon rollers. Subsequently the fixed turret, commonly known as a barbette, was substituted for the revolving turret, the guns being mounted above the barbette and revolving upon a turntable. The armored barbette protected the turntable, the mount and the other appurtenances of the gun, but the gun itself was entirely exposed. This arrangement was adopted for several reasons connected with questions of construction, but principally in order that the gun might be carried higher.

Apart from these reasons it had the advantage of giving greater facility and accuracy in the working of the gun by the gun's crew, and as so large a part of the gun was exposed to fire it did not seem necessary in view of the advantage gained in the facility of working to inclose the remainder. This entirely unprotected condition of the heavy guns exists to-day in the "Admiral" class of battle ships in the English navy and in many French ships, and was followed by my predecessor in the designs of the "Monterey."

Since the adoption of the above type, as the rapid-fire gun has been developed in the higher calibers, it has become customary to protect the gun and its crew from the rain of rapid fire projectiles by a light cover or hood of various forms erected about the gun and protecting the gunners in front, though open at the rear. This protection is properly a shield and invariably made of light armor.

In making designs for our new ships it was deemed desirable to advance upon the types of gun shields then in use for heavy guns mounted in barbette. A much heavier weight of armor was employed upon the new design, so much so that it ceased to have the character of a mere shield and resembled more nearly the turret that was in use before barbettes were invented. It was practically a closed revolving turret superimposed upon a fixed barbette. This arrangement was not only adopted in the new ships, such as the "New York" and the battle ships, but also in certain of the ships already designed—viz.: the "Monterey," "Puritan," "Monadnock" and "Amphitrite," the first of which, as already stated, originally gave no protection to the gun itself, while the others had originally been simple turret ships of the old fashioned type.

The uniform system thus adopted of turrets superimposed upon high cylindrical barbettes, giving protection to the guns far in excess of that in ships of the simple barbette type, even with the addition of shields, and avoiding the defects of the simple turret type, constituted a great advance over any other existing design.

In the turret adopted in these designs the sides were given a slope, so that the structure had the form of a truncated cone. A turret of this shape had been suggested many years ago, and was patented in 1865 by Captain Eads as his invention, but, as far as is known, it had never been used.

Before the work had proceeded very far, however, two objections became apparent in the use of this inclined form of turret.

The first lay in the difficulty in the manufacture of armor of the weight desired in the prescribed form, and, although this difficulty might have been overcome with time and improved machinery, yet it would have involved, in the case of some at least of the ships, a heavy addition to the cost and a very considerable delay in completion. The latter objection was particularly important in the case of the "New York" and "Monterey," which at that time were well advanced.

The Chief Reason for the Change.

But the all important objection to the proposed turret, which became more and more apparent as developments took place in our new ordnance, was the fact that the space allowed within the structure was already insufficient for the free working of the gun, and that the developments pointed unmistakably to the necessity of greater space in the future. These developments related chiefly to the lengthening of the gun, to increased recoil due to the adoption of smokeless powder and to certain changes in the breech mechanism.

In the opinion of the Chief of the Bureau of Ordnance, whose special duty it is to see to the efficiency of the battery supported by that of five out of six of the members of the Board of Construction, the efficient working of the guns in the turrets required greater space than was afforded by the inclined form, and this result could only be attained by making the turrets vertical The same majority of the board concurred in the opinion that no material loss of defensive protection was involved in this change.

Although such a concurrence of professional opinion might properly conclude the Department, the recommendation was made the subject of thorough and minute personal examination before any decision was arrived at. Had there been only a possible doubt as to the efficiency of the guns it would have been enough to warrant a change, even at some expense of protective qualities, the successful operation of the battery being clearly a prime element of efficiency in a ship of war. But the evidence being such as not only to create a doubt, but to satisfy the Department conclusively that the space was insufficient, and that the cylindrical turret, giving the needed space, involved no serious loss of defensive qualities, it had no hesitation whatever in arriving at its conclusion.

It may be added that our armored vessels, as now under construction, with cylindrical turrets, afford a heavier protection for the inclosed portion of the guns than any other vessels of their type in the world.

The Cramps of Philadelphia have made a proposition to purchase from the city a plot of ground for the enlargement of their shipbuilding plant, so as to cover a space now occupied by several streets. The purpose is to commence as soon as possible the construction of six large steamers.

The policy of making forest reserves in the Western States and Territories has been greatly advanced by the Government during the past year. Six such reserves have been created by Presidential proclamation, making an area of 3,252,260 acres. This policy will be further carried into effect and will be most beneficent and far-reaching in its results.

Standard Roll Lathe.

The Totten & Hogg Iron and Steel Foundry Company of Pittsburgh, Pa., manufacturers of general rolling mill machinery, are the builders of the Standard roll lathe, here illustrated. This lathe is made in three sizes: First, 55 inch swing by 18-foot bed; second, size shown in the cut, 38 inch swing by 18-foot bed; and, third, 24-inch swing. Of course, the beds can be made longer or shorter, as may be required. The 38 inch lathe was designed specially to meet the requirements of a merchant mill doing all classes of work. For necking it is claimed to be unequaled, as it is stated to be the only lathe in the market having the head cast in a single piece, which, with the extra heavy steel center spindle drawn into a taper socket by a steel key, prevents any lift or spring in the head stock center. The gearing is of heavy pitch and broad face, and the internal gear of the face plate is cast solid with it, thereby greatly stiffening the wheel. All the journals are of large diameter and ample length, and provision is made for complete lubrication. The cones are of large diameter, with 6-inch face, permitting the use of a wide belt.

The pinion for driving the face plate is of steel and is placed on the front of the lathe so as to bring the power as near the work as possible, and as the journal is on the side there is no lift on the caps. The head stock is central on the bed so that the lathe can be worked from either side. The bed is broad and extra heavy and is ribbed its whole length underneath the shears to allow the use of hooked bolts, thus rendering it unnecessary to pack up back of the bolts on the necking rest. The tail stock is on rollers and is very broad, extending across the bed, with the bolts on the outside, so that the bolts need not be removed in setting the lathe. It is supplied with a large handwheel of the shape best adapted for use with a spanner. The housings are strongly constructed and have round posts and short caps. They are fitted with piano rests with bearings back of the center of the necks. There is a simple topping rigging which can be quickly adjusted or removed, and also an arrangement for plumbing up or crossing rolls in topping. The cap bolts can be removed and the roll changed without disturbing any of the other parts. The lathe is intended for taking the heaviest cuts on a chilled roll. The principal dimensions are: Swing over shears, 44 inches; swing over necking rest, 35 inches; swing inside piano rest, 38 inches; between centers, 12 feet; housing takes necks up to 20 inches in diameter and bodies up to 38 inches in diameter.

Random Shop Notes.

We recently saw at the works of Pedrick & Ayer, 1001 Hamilton street, Philadelphia, a side miller designed for doing work of an unusually heavy character. At the time we saw the machine in operation it was taking a cut from machinery steel $\frac{3}{8}$ inch deep, $2\frac{3}{4}$ inches wide, at the rate of $2\frac{1}{2}$ inches per minute, the cutter being $5\frac{1}{2}$ inches in diameter and running with a peripheral speed of 17 feet per minute. This cut amounted to 2.57 cubic inches per minute, and was far below the actual capacity of the machine, which could not be run to full limit of its power owing to the fact that it was belted to the main shaft, and it would have been necessary to stop the other machines on that floor in order to give it all the power required in doing the full limit of work it was designed for. The machine was built upon one of the regular foundations or bed plates used by the company in the manufacture of their well-known open side planers, the driving gear, saddle and tool carriage being modified to suit the new conditions. In the work the machine was then doing it was handicapped by the large diameter of the cutter used and yet it performed this work without the slightest indication of tremor in any part. The machine was built for R. D. Nuttle of Pittsburgh, who will use it for milling the meeting surfaces of steel gears which are made in two parts, the straight portions then being milled with tongue and groove. These wheels are 7 inches wide by 27 inches in diameter.

At first glance the machine somewhat resembles the open-side planer. On one side of the bed provision is made for carrying two independent tables for holding the work. The main advantage to be gained by the use of the two tables arises from the fact that one table could be used in milling a certain piece of work while work to be milled is being secured to the other table so as to be in readiness when the work is finished. This permits of the machine being run continuously.

Placed at one end of the bed, and on the side opposite to that carrying the tables is the driving cone, to the inner end of the shaft of which is attached a pinion meshing with a gear carried by a shaft extending parallel with the bed and having mounted on its other end a bevel pinion engaging with a gear whose shaft carries a pinion meshing with a gear on the tool spindle. This train of gears is so proportioned as to back-gear the machine 17 to 1. The machine is also provided with changeable gears for feeds from $\frac{1}{16}$ to $\frac{1}{2}$ inch per revolution of cutter. Of course there is nothing arbitrary in these feeds, which can be altered to suit varying conditions in the work by merely changing the gears. Provision is made for the quick handling of the tool carriage table, and there is also provision by means of which the tool cannot be made to undertake work beyond its capacity and thereby run the risk of breakage. There is also a safety device provided for stopping the machine automatically at each end of the stroke, if for any reason it should run beyond the mark set. The machine will cut 12 inches wide, the tables have a vertical up and down movement of 22 inches, and the travel of the tool carriage is 5 feet 10 inches. It will be seen from these dimensions that the machine is particularly adapted to rod milling. It is built in the most massive manner throughout, after a design insuring compactness, rigidity and ample strength.

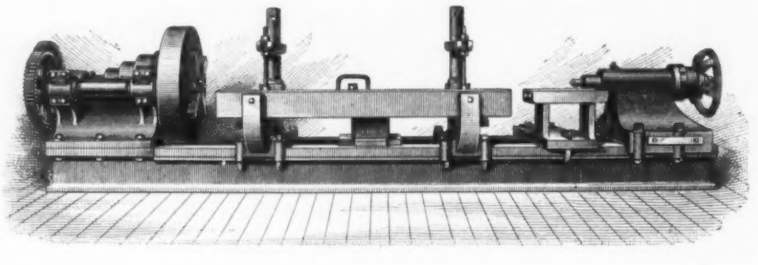
The same firm have just finished for R. D. Wood & Co. of Philadelphia an open side planer of larger size than they have heretofore attempted. It will plane 42 inches by 12 feet long, has a cutting speed of 22 feet and a return of 66 feet per minute, and is designed to carry a double head if necessary. Its total weight is 40,000 pounds. In this connection we may mention a work which is now being done regularly in these works by one of their 30-inch open-side planers, which illustrates in a very forcible way the wide capacity of the machine. One part of a machine regularly built by them is rectangular in section and requires planing 42 inches wide. This is done on the 30-inch planer, the tool carriage being moved to the extreme end of the arm of the saddle carrying it, and a curved tool inserted the cutting point of which reaches beyond the side of the machine the required distance.

PATTERNS LETTERED.

A convenient method, which has been found to work to the greatest advantage, is employed in the handling of all patterns. Every pattern of every machine is provided—first, with one or more letters indicating the particular machine to which it belongs, and then with a figure designating the part. For instance, the symbol $\frac{BP}{52}$ means that that particular casting belongs to the blower planer, and that the drawing marked 52 will show precisely how the casting is to be finished. This scheme has been found to work to advantage, mainly in saving time, since it gives the workmen all necessary directions for carrying on the work demanded by that piece and does away with frequent consultation of the drafting room.

ELECTRIC MOTOR.

Some time since Pedrick & Ayer purchased a $1\frac{1}{2}$ horse-power electric motor, mounted upon a wooden base, provided with drive hooks, by means of which it can be secured to the floor in any desired position. This has been found convenient in every respect. It can be carried without trouble to any part of the shop, connected quickly to the circuit furnishing the lights, and any degree of power up to the limit of its capacity required by the work in hand can be obtained by means of a resistance coil carried by the machine. In this way the machine is employed to do facing, boring, drilling and similar operations on large work. The principal reason for its economy is its light weight and the ease with which it can be handled as compared with the weight and difficulty of handling the piece upon which it works; in other words, in a great many cases it is easier to carry the motor and adjust the tools it is to operate to the piece to be operated upon than it is to mount that particular piece on a machine and then let the machine do the work. It consists really of a combined portable power and portable tool. Although Pedrick & Ayer now have $\frac{1}{2}$ acre of floor space, their business has grown so largely of late that they are seriously inconvenienced by lack of room. Their business has gradually widened into the building of machines much larger in size than they contemplated when they erected their present works, and as a consequence they find their facilities inadequate. Therefore the most serious question now confronting them is how best to obtain more room.



STANDARD ROLL LATHE.

Of the 40 wooden ships in the navy 20 years ago only 9 remain in active service.

THE WEEK.

There is a general clamor in Germany about growing indebtedness and growing taxation, which has become louder since business became slack all over the country.

Reports from the unions of skilled trades in the British labor market for the past month show a considerable increase in the number of their unemployed.

The Austrian Ocean Steamship Company Lloyd concludes its returns for the first nine months of the year with a deficit of 500,000 florins.

A bill introduced into Congress prohibits any alien who is a non-resident of the United States from doing any manual labor in this country. This is aimed at Canadians who cross the St. Lawrence River, returning at night.

It is reported that the entire henequen crop of Yucatan has been contracted for in the United States at a price that will give $12,000,000 on a fair crop and $15,000,000 on a large crop.

Two steamships of the Mallory line have been chartered by the Panama Railroad Company, to ply between New York city and Colon, beginning February 1, when the present contract expires. Whether the pending injunction will have any effect upon the proposed arrangements remains to be seen.

The British Government are about erecting a foundry in India in which to make shell for breech-loading ordnance and to accommodate machinery used in making repairs.

Peru has advaneed the duties on imports 8 per cent., tobacco alone excepted.

The head tax collected at the immigrant landing in New York having dwindled down to an insignificant amount, in consequence of the small number of arrivals, Commissioner Weber has vacated his office.

Mexico and Australia are asking the United States to admit wool free in exchange for American manufactures.

A Western miner offers to provide the United States Treasury with any amount of silver dollars for 90 cents apiece, of a quality superior to those now in use and much heavier.

At a national convention of British agriculturists held in London last week, the speakers agreed in describing the calamitous condition of farming interests in the United Kingdom.

The Mexican Government has given orders that the Tampico Harbor Company shall collect toll on all vessels using the canals after January 1, 1893, not exceeding $3 for every foot of draft on entering, and a like sum on departure, and in addition a toll of $1 per ton upon the whole cargo which may be unloaded, and a like sum per ton on the whole cargo which may be taken on in the port.

The big steel shears manufactured in Philadelphia for the Charleston navy yard have been raised into position. They are 112 feet high, and weigh over 45 tons.

The low price of silver in Mexico makes it difficult for the railroads to declare dividends.

Exports of wheat from New Orleans in November amounted to 1,465,000 bushels, an increase of 32 per cent. over November, 1891.

The increase of Cuban trade with the United States during the past year affords the best example that can be cited of the advantages gained thus far under commercial reciprocity measures. Exports and imports combined in the trade between the United States and the Spanish West Indies increased from $88,408,298 to $114,266,298 in a single year. The comparison is as follows for 13 months, ending August 31, 1891, and September 30, 1892:

	Exports to United States.	Imports from United States.
1892	$89,639,230	$24,627,068
1891	73,368,292	15,040,206
Increase	$16,270,938	$9,586,862

Besides exports of machinery there has been a substantial gain in the movement of agricultural products.

The Brooklyn Bridge tolls during the last year amounted to $1,228,729.01, being an excess of $52,218.06 over the receipts of last year. The profits were $22,149.40.

The Supreme Court has not in many days made a more important decision than that holding that the State of Illinois can revoke or otherwise alter its grant of riparian rights in Chicago to the Illinois Central. The money loss of the railroad is slight in comparison with the effect of the decision in placing like grants—in Jersey City, for instance—under discussion.

The wheels of old mowing machines are made use of for constructing low-down wagons with wide-rimmed wheels that prove to be just the thing.

An irrigation company has been formed in Wyoming with $5,000,000 capital to build a canal 120 miles long to bring under culture 224,000 acres recently purchased from the Union Railroad Company. In Nebraska the Platte River Canal is about to be made at a maximum cost of $2,000,000. The length of the canal will be nearly 40 miles; its depth 10 feet.

The Louisiana sugar crop is being marketed more rapidly than ever before, though in quantity it has often been exceeded.

The inheritance tax on the late Jay Gould's personal estate, equal to 1 per cent., will yield the State $750,000, rating the estate at $750,000,000. It ought to be ten times as much.

The new iron bridge of the New Jersey Central Railroad across the Delaware River at Easton is a double-track structure 1020 feet long. Four big Wooten engines, weighing about 80 tons each, were used in testing it. They moved slowly over the bridge close together.

The extension of the Beech Creek Railroad to the Clearfield branch of the Pennsylvania has been completed, giving increased facilities to the coal traffic.

The Philadelphia City Hall has cost thus far over $16,000,000. The amount asked for this year is slightly over $2,000,000. When the erection of the building was begun it was to be finished in a few years at an estimated cost of $5,000,000.

A Liverpool steamship circular complains of low unremunerative ocean freights and suggests the breaking up of some 250,000 tons of the obsolete type steam tonnage as the most effectual remedy.

An American exporter who has tested the Canadian market with "many articles of great utility manufactured in the United States not handicapped by the Dominion tariff" has had encouraging success.

Tank steamers in the Russian petroleum trade are driving American vessels away from Singapore. Last year at the Baku wells the price of oil fell to 1 shilling per barrel and touched the lowest point at 2½ pence, a fall exceeding in rapidity that of silver itself.

The new water works in Brooklyn cost $5,000,000. The auxiliary driven wells near Valley Stream are quite a success.

The Mexican coffee crop this year will yield $8,000,000.

An Albany dispatch says that Senator Hill and associates will advocate in Congress the construction of a ship canal through this State on the route of the Erie Canal, the dimensions to be 200 feet in width with a depth of 20 feet, at an estimated cost of $150,000. Chicago at the same time will urge the National Government to build a canal from the Lakes to the Hudson.

The new sugar crop in Cuba will be the largest ever produced and the tobacco crop is larger every year. Exports of iron ore are expected to increase.

President McLeod of the Reading system promises New England greater prosperity when the new terminal stations and other arrangements on the line of the Boston & Maine Railroad have been completed.

William H. Webb's home for veteran shipbuilders, now approaching completion in Fordham, will employ a staff of competent instructors, who will teach everything pertaining to the building of ships of iron or wood.

The brewers' pool of Philadelphia, formed in 1886 by the consolidation of about 40 smaller concerns, when sued last week for $17,000, claimed that the plaintiff could not recover, the combination being "injurious to the public, destructive of competition," &c. The matter is under advisement.

The Builders' Exchange of Pittsburgh adheres to the rule which makes nine hours a legal day's work. All the builders' exchanges are invited to a convention to be held in Pittsburgh, January 17.

The Georgia Central and several other Southern railroads favor the plan for direct trade to Europe from a Southern port. The only question relates to the probability of obtaining remunerative return cargoes.

In his annual report the Attorney-General remarks that "great care and skill have been exercised" by trust combinations "so as to avoid the provisions" of the anti-trust law, and adds that, "as has been seen in the proceedings growing out of the indictments in Massachusetts (against the Whisky Trust), these efforts have not been without success."

Pittsburgh, the second city in Pennsylvania in wealth and prosperity, now has one of the handsomest and most imposing county governmental buildings in the country, built in a little more than three years, at a total cost to the taxpayers of less than $2,500,000. The county officials dealt directly with the contractor. In the course of construction there were used 11,680 pounds of brass, 54,533 pounds of galvanized iron, 96,774 pounds of iron pipe, 1,187,136 pounds of rolled iron beams, 1,308,317 pounds of cast iron, 2,580,909 pounds of wrought iron, 14,332,140 bricks, and 100 miles of copper wire to fasten tiles upon the roof.

The contemplated railroad bridge across the Mississippi above New Orleans will have three spans, one of them spanning 1000 feet.

The postal revenues of the United States have increased so rapidly that by the end of the next fiscal year they will probably show a surplus of $1,000,000, leaving out of this calculation the payments to be made under the new contracts for ocean mail service. For the three years ending June 30, 1892, the postal revenue amounted to $197,744,359, which was an increase of $52,263,150 over the revenue for the three years ending June 30, 1888. No such increase as that shown for these three years has before appeared in the revenues of the Department.

The Iron Age

New York, Thursday, December 15, 1892.

DAVID WILLIAMS, - - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, - - - EDITOR.
GEO. W COPE, - - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - - HARDWARE EDITOR.
JOHN S. KING, - - - - BUSINESS MANAGER.

The Small Percentage of Failures.

The year just closing has been remarkably free from failures in the iron trade, especially when we consider the very low prices that have prevailed for all kinds of iron and steel products. The most conspicuous of these business reverses were an ore importing house in Philadelphia, a structural mill near Pittsburgh, a pig-iron establishment in the Shenango Valley and a wire mill in Illinois. It would have been supposed that an era of the lowest prices on record would not fail to be attended by numerous cases calling for the intervention of the sheriff. But though complaints of the unsatisfactory condition of trade have been general, yet evidence that it has been disastrous is decidedly wanting. Manufacturers have undoubtedly been able to adjust themselves to meet the exigencies of the time, as there are certainly few concerns with a sufficient surplus to enable them to run at a loss for any considerable period.

Comparing this condition of affairs with the numerous failures in past years whenever an interruption occurred to the transaction of business under high pressure, a strong argument is deduced in favor of moderately low prices. Speculative interests may pray for a "boom" and endeavor in every way to encourage one, but the healthiest state of trade is found when prices are on a comparatively low plane. With less money invested in raw materials and no great incentive to increase capacity and force production, manufacturers are better prepared for a slight shrinkage in their selling prices, at the same time knowing that a heavy decline is almost an impossibility. But when all the elements of cost are high, even if there should appear to be a handsome margin of profit in manufacturing, the danger of a collapse is always imminent, and widespread financial disaster then overtakes those who are not well prepared to meet the shock.

The stability of our manufacturing interests at this time is a matter of earnest congratulation. Results have been accomplished and conditions have been endured which but a few years since would have been deemed almost incredible without a complete revolution in our wages system. As stated in our last issue, the technical management of our industrial enterprises has been steadily at work reducing elements of cost and enabling the commercial side to meet the changing phases of the markets for manufactured products.

With such a record the future seems safe. Should it be necessary to go still lower, which from present appearances is not improbable, the way will be found to meet the necessities of the situation. The day has passed for a manufacturer to sharpen his pencil, carefully tabulate existing elements of cost, strike a grand total and mournfully protest that no further reduction can possibly be made. That was done when pig iron cost $30 per ton in the sixties, when it cost $20 per ton in the seventies and when it cost $15 per ton in the eighties, but it is almost a lost practice now, although pig iron has sold lower this year than ever before.

The Efficiency of the Steam Engine Jacket.

The Institution of Mechanical Engineers of England some time since created "The Research Committee on the Value of the Steam Jacket." The second report of this committee was recently presented. In addition to collecting what information they could from outside sources, they presented in detail the records of five original sets of experiments, most of which were made specially for this report. In each case the investigation covered the performance of the same engine, both with and without steam in the jackets. The first set of experiments was made on a compound jet condensing beam pumping engine, the second on a triple-expansion pumping engine, the third on a compound mill engine, the fourth on the experimental engine at the City and Guilds of London Central Institution, and the fifth on an experimental vertical engine.

From the records thus obtained it appears that the expenditure of a quantity of steam in an efficient jacket produces a saving of a greater quantity in the cylinder. The ratio between these two quantities is an important factor in this investigation. Unfortunately, the jacket water has not been recorded in many of the experiments of which the results have been collected; but in all the trials made by members of the committee it has been carefully measured. In the summary column q gives the percentage saving in feed water resulting from the use of the jackets; column p gives the actual saving in pounds per indicated horse-power per hour; and column r gives the water condensed in the jackets in pounds per indicated horse-power per hour. The following examples are taken from the tables:

	Saving in feed water with jacket.	Actual saving.	Water condensed in jackets.	Ratio.
a.	q.	p.	r.	p to r.
No.	Per cent.	Pound.	Pounds per H. P. per hour.	
41	17.4	6.15	3.29	1.9 to 1
42..	8.6	2.76	1.20	2.3 to 1
43..	10.3	3.50	1.72	2.0 to 1
44..	19.0	5.82	1.13	5.2 to 1

No. 44 shows that for every 1.13 pounds of steam expended in the jackets there is 5.82 pounds less feed water passed through the cylinder, the net saving being thus 4.69 pounds.

The experiments showed that, generally, the smaller the cylinder, the greater is the percentage of gain from the use of the jacket, arising, doubtless, from the fact that a small cylinder gives a larger jacket surface for a given weight of steam passing through it than a larger cylinder does.

In some of the experiments it was possible to measure both the consumption of coal and that of feed water, and as these figures have considerable practical value and interest, they are in every case added to the results. Some, therefore, form complete engine and boiler trials, but it must be remembered that the effect of the jackets is measured only by the consumption of feed water and not of coal.

The single-cylinder condensing engine experimented with had a cylinder 15 inches in diameter by 30 inches stroke. The body and both ends of the cylinder were jacketed. The pressure in the jackets ranged from 48 to 187 pounds per square inch above the atmosphere, the result being that the pounds of feed water per indicated horse power with the low pressure were 23.85 and with high pressure 19.85. Other experiments made with engines of the same type showed an economy due to the use of the jacket varying from 7 to 12½ per cent.

In experiments with a compound non-condensing engine the pounds of feed water per indicated horse-power per hour were 26.29 without the jacket and 25.25 with the jacket. Two other jacket experiments are also recorded which show an economy of 15 per cent. In the test of a triple-expansion condensing vertical inverted engine having cylinders 5, 8 and 12 inches in diameter and 10, 10 and 15 inches stroke, the engine being on three uncoupled cranks, the results showed that without the jacket 16.42 pounds of feed water were recorded for each indicated horse power per hour, while only 13.56 pounds were recorded with the jacket. In this engine 64.7 per cent. of the internal surface of a high-pressure cylinder was jacketed, 67.1 per cent. of the internal surface of the intermediate cylinder, and 75.2 per cent. in the low-pressure cylinder.

The discussion following the presentation of this paper brought out as the most prominent feature the fact that the opinions of English engineers vary about as much regarding the actual efficiency of the steam jacket as do those of American experts, and further, that the Institution of Mechanical Engineers resembles our own Society of Mechanical Engineers in one respect, viz., that of being fearful of advancing a positive opinion on any disputed topic either through one of its authorized committees or as a body. Professor Unwin said he was sorry the committee had decided not to express any opinion, as that curtailed the possibility of criticism. He thought it an extraordinary fact that the experiments had not produced a case in which the jacket had done any harm.

English engineers, as was brought out during the discussion, are prac-

tically unanimous in the belief that the steam jacket is economical, but they are not united as to how far the jacketing should be carried. One speaker noted that there was no case mentioned in the report of the pistons being jacketed and said he had known instances in which the required power had not been developed until the pistons had been arranged to take steam inside. He also advocated the jacketing of the piston rods, as they must carry off a good deal of heat by passing from the interior of the cylinder to the air. He would also jacket the steam pipe. He illustrated the value of the jacket by stating that the power of an engine had been increased from 41¼ horse-power to 49½ horse-power in five minutes by putting the steam jacket into use.

It is not necessary to further review this report or the discussion it elicited. Our knowledge of the real work done by the jacket and of the efficiency its use produces is being increased little by little; yet there remains much to be done and many experiments to be made before we shall possess facts establishing the true value of the jacket under all conditions. In this connection the paper by Professor Carpenter on steam jackets, read at the last meeting of the American Society of Mechanical Engineers, and the discussion by Professor Thurston, will be read with interest.

The Engineer Corps in the Navy.

Engineer-in-Chief Melville in his report just published again calls attention to the fact that there are not engineers enough in the navy to properly care for the machinery of the war vessels. He says:

The actual state of affairs in the navy now as regards its engineering branch is very serious and very alarming; the use of high-powered machinery and the adoption of small machinery for all sorts of purposes on board ship have so increased and complicated the scope of the engineers' duties that the present number available for sea duty, even after the shore stations have been reduced far below the number actually needed, is so utterly inadequate for the duties to be performed that it has now become simply a matter of cruelty to place officers on sea duty, where their hours of incessant and laborious toil, performed under great mental strain and the weight of responsibility, are greater and more exhausting than those of the laborer on the streets or in the building trades. Not only this, but on account of paucity of numbers, the engineer at sea now frequently finds himself ordered to the performance of duty so multifarious as to be beyond the limit of his physical capacity and endurance, thus forcing him to jeopardize his commission and his professional reputation for the non-performance of duties for which he is held responsible.

The usual complement on our most powerful ships now is one chief engineer and three assistants. The latter are compelled to take three watches at sea, and often in port. The work is extremely exhausting, and is performed in intense heat and a "villainous atmosphere." It is the opinion of the chief engineer that for any cruising vessel of 5000 horse-power and upward there should be not less than one chief engineer and four assistants, while in some of the vessels of great power the number should be sufficient to have two officers on duty at a time. The engineer corps should be increased to not less than 300, and as this increase must be gradual, provision for it should be made at once. There is a bill now before Congress providing for this increase, through which it would be brought about in eight years. The report dwells at length upon the fact that it is absurd to equip a vessel with complicated and costly machinery and yet fail to provide for its proper care.

American Ocean Navigation.

There is money in running lines of ocean steamers on the short routes between United States ports and ports in the West India Islands, Mexico, ports on the Gulf and in South America. England has whole fleets of steamers thus employed, which obtain profitable freights, afford occupation to thousands of mariners, engineers and persons in subordinate positions, and provide for the interchange of every variety of merchandise and manufactured products. Now that American shipyards are equipped with improved machinery and every desired facility for the construction of steamers of the modern type, merchants in the United States might enter the field with advantages never before possessed to the same extent, and widen the market for an endless variety of articles of the kind constantly born of new invention.

An additional reason for encouraging a new interest in ocean navigation on the part of American traders and capitalists is the superabundance of men seeking employment. In European Governments the army and navy are always calling for new recruits, and in England particularly, the mercantile marine absorbs a multitude of able-bodied men. Not so in our principal American cities.

Respecting the first cost of ships there is a general consensus of opnion that American yards are so thoroughly equipped with tools and skilled artisans as to fear no rivalry. More pertinent to the inquiry, as bearing upon the practicability of extending the American ocean marine, is the subsequent cost of navigating; and just here a few authentic data from the managers of one of our most successful lines of British-built steamers in the West India trade will apply. A steamer of the same class as the "Orinoco" and "Trinidad" of the Bermuda line has six sailors, at $20 per month; two quartermasters, one at $50 and one at $35; one boatswain, $35; four engineers, one at $120, one at $100 and two at $60; six firemen, at $30; two coal heavers, at $20; captain, $120 per month; first officer, $60 per month; second officer, $40 per month; chief steward, $100; three others average $20; six flunkeys, at $12 per month; stewardess, $50. The consumption of coal is, say, 30 tons a day, at about $5 per ton. Victualling is variable, depending on the amount of travel, but a large item of expense. In addition are the pilotages in and out of port, stevedore's bills, wharfage, &c. The total running expenses are probably $225 to $250 a day. The estimated gross earnings per round trip from New York in the busy season are $7000, calling the freight receipts $2000. The steamship line referred to is reported to have cleared over $37,000 in four months during the tourist season, running two steamers. These latter figures are supposed to be only approximately correct, but may serve a purpose in forming general conclusions.

The time cannot be remote when all the principal routes from New York to the Bermudas and Windward Islands, as well as to the Southern republics, will be equipped with steamers affording rapid communication and offering every facility for travel and trade. It is important that American enterprise should lead. Steamers from American yards already running to Havana, Brazil and Venezuela are nowhere surpassed.

In another column will be found the text of Judge Gresham's decision in the suit brought by the Interstate Commerce Commission against the Illinois Steel Company. This is claimed to be the most important decision that has yet been made with reference to the constitutionality of the Interstate Commerce act. Under this decision the commission cannot appeal to the courts for aid in compelling the production of documents needed for the purpose of obtaining evidence. The commission is thus shorn of all power, except in cases in which testimony is forthcoming from other sources than the parties immediately interested. No such cases have thus far developed. If they should the commission could then enforce the penalties provided by the act. The recent Kansas decision in the long and short haul case, the Chicago decision with regard to testimony and the Counselman decision as to the constitutional rights of witnesses seem to have nullified the law. It is difficult to see how it can be amended so as to meet the requirements of the Constitution and at the same time prove effective in accomplishing the obvious purpose of its enactment.

There is a growing feeling among business men that the silver question should not be trifled with any longer. The Sherman act should be promptly repealed and other safer methods be chosen to increase the circulating medium. The proposal should be adopted which has been made by different comptrollers from time to time and is again being brought to the notice of Congress. This is to allow the national banks to issue bank notes to the par value of the United States bonds deposited by them as security. Such a measure would at least afford temporary relief.

PERSONAL.

W. H. Mechling, superintendent of the 10-inch, 23-inch and 33-inch mills of the Homestead Steel Works, has resigned his position, and Reese James, formerly employed in the Edgar Thomson Steel Works, has been appointed to take his place.

Contrary to the plans made earlier in the year, Andrew Carnegie is expected to come over from Europe this winter.

A. J. Forbes-Leith of the Illinois Steel Company has arrived from Europe.

An Increased Iron Output.

DECLINING STOCKS.

The characteristic features of former months still obtained during November, viz., an increasing production of pig iron, coupled with a reduction in the stocks, while the markets are developing an easing tendency. The latter circumstance is probably due rather to a fear that while production goes on steadily at the accelerated rate, consumption during the next four weeks will unquestionably be notably curtailed.

On December 1 the active furnace plant, grouped according to fuel used, possessed the following weekly capacity, the unit being the gross ton:

	Furnaces.	Tons per week.
Anthracite	69	33,602
Coke	136	133,160
Charcoal	41	9,509
Total December 1	246	176,271
Total November 1	244	171,082
Increase	2	5,189

The weekly product of all the furnaces on November 1 compared as follows with that of preceding periods:

	Furnaces in blast.	Capacity per week. Gross tons.
December 1, 1892	246	176,271
November 1	244	171,082
October 1	236	158,027
September 1	236	151,648
August 1	238	155,136
July 1	254	169,151
June 1	260	173,674
May 1	268	177,886
April 1	280	185,462
March 1	295	193,902
February 1	308	187,383
January 1	305	188,082
December 1, 1891	298	188,135
November 1	304	187,685
October 1	306	181,615
September 1	290	170,846
August 1	296	169,576
July 1	293	171,115
June 1	258	146,782
May 1	227	115,590
April 1	223	113,483
March 1	257	134,536
February 1	294	146,050
January 1	302	167,599
December 1, 1890	340	183,846
November 1	342	177,958
October 1	336	179,263
September 1	323	171,776
August 1	324	164,798
July 1	336	175,727
June 1	345	180,791
May 1	344	180,089
April 1	344	178,474
March 1	343	180,991
February 1	334	173,651
January 1	333	174,058
December 1, 1889	328	169,151
November 1	323	165,225
October 1	311	151,057
September 1	294	134,068
August 1	286	145,899
July 1	285	141,419

The status of the anthracite furnaces is shown in the following table:

Anthracite Furnaces, December 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New York	19	4	2,012	15	5,860
New Jersey	12	3	1,621	9	2,625
Spiegel	3	3	240	0	0
Pennsylvania:					
Lehigh Valley	46	25	11,259	21	7,635
Spiegel	1	0	0	1	56
Schuylkill Valley	30	11	5,794	19	7,440
U. Susquehanna Valley	16	7	2,835	9	1,525
L. Susquehanna Valley	17	7	4,696	10	2,439
Lebanon Valley	15	9	5,145	6	2,460
Totals	159	69	33,602	90	30,040

For a number of months past our records of active anthracite furnaces show the following:

	Furnaces in blast.	Capacity per week.
December 1, 1892	69	33,602
November 1	69	30,869
October 1	69	29,958
September 1	66	27,453
August 1	66	28,821
July 1	72	31,754
June 1	76	33,209
May 1	81	35,473
April 1	84	36,487
March 1	89	38,678
February 1	92	38,124
January 1	94	38,307
December 1, 1891	85	34,905
November 1	87	33,802
October 1	85	32,459
September 1	82	31,214
August 1	88	32,860
July 1	92	37,892
June 1	91	36,561
May 1	90	35,331
April 1	91	36,598
March 1	93	38,543
February 1	95	40,212
January 1	101	43,166
December 1, 1890	105	43,474
November 1	104	42,141
October 1	100	38,627
September 1	104	39,115
August 1	106	41,013
July 1	112	42,543
June 1	117	45,142
May 1	123	46,912
April 1	119	46,110
March 1	115	45,790

Although the number of furnaces in blast was the same on December 1 as on November 1, the capacity at work has been very considerably increased. This is partly due to the fact that some large furnaces have blown in, while the plants which have stopped have been relatively small. It is due also to the circumstance that production seems to have been generally at a considerably heavier rate with the same furnaces. Thus, two companies in the Lehigh Valley, running chiefly on foundry and forge irons, with 12 furnaces in blast, reported a total October product of 19,711 tons, while the November product of the same plants, embracing the same furnaces, was 25,693 tons. This alone, therefore, would show an increase of about 1400 tons a week, without any change whatever in the furnaces operating. In New York Cedar Point resumed operations late in November while Franklin was banked. In the Lehigh Valley No. 2 Glendon went out on November 16. In the Lebanon Valley one Bird Coleman has been added to the list of active furnaces.

The status of the coke furnaces was as follows:

Coke Furnaces, December 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New York	6	3	3,493	3	1,551
Pennsylvania:					
Pittsburgh district	24	21	35,963	3	5,073
Spiegel	2	2	2,985	0	0
Shenango Valley	18	6	6,187	12	9,140
Juniata and Conemaugh Valley	18	8	7,640	10	3,120
Youghiogheny Val	3	0	0	3	2,215
Miscellaneous	4	1	588	3	1,078
Maryland	5	2	2,781	3	3,090
West Virginia	1	0	0	1	250
Wheeling District	9	6	6,629	3	1,815
Ohio:					
Mahoning Valley	15	9	9,728	6	3,640
Central&Northern	11	9	7,165	2	1,300
Hocking Valley	12	1	620	11	2,950
Hanging Rock	15	8	1,587	7	1,926
Indiana	2	0	0	2	420
Illinois	19	9	14,265	10	12,530
Minnesota	1	0	0	1	700
Wisconsin	4	4	3,400	0	0
Missouri	6	1	796	5	2,740
Colorado	3	2	692	1	400
The South:					
Virginia	20	12	7,277	8	4,180
Kentucky	4	3	1,413	1	320
Alabama	38	22	16,045	16	8,580
Tennessee	13	7	3,876	6	2,020
Georgia	2	0	0	2	1,045
North Carolina	1	0	0	1	94
Totals	256	136	133,130	120	70,477

As compared with previous months, the active coke furnaces make the following showing:

	Furnaces in blast.	Capacity per week.
December 1, 1892	136	133,160
November 1	133	130,673
October 1	128	118,895
September	128	114,538
August 1	131	117,984
July 1	140	127,433
June 1	145	128,852
May 1	147	132,313
April 1	152	138,116
March 1	163	143,490
February 1	167	138,268
January 1	163	138,611
December 1, 1891	162	142,747
November 1	162	142,152
October 1	163	135,997
September 1	161	127,664
August 1	154	125,736
July 1	150	122,422
June 1	124	100,165
May 1	98	70,529
April 1	96	67,570
March 1	113	85,093
February 1	125	94,473
January 1	143	112,153
December 1, 1890	168	127,634
November 1	168	122,555
October 1	170	127,247
September 1	156	119,757
August 1	150	113,040
July 1	163	120,673
June 1	167	123,340
May 1	169	122,489
April 1	173	121,560
March 1	169	122,595
February 1	169	118,568
January 1	169	119,396
December 1, 1889	162	116,319
November 1	160	112,269
October 1	154	102,454
September 1	141	96,744

There have resumed during November, Spearman, in the Shenango Valley, one Shoenberger, in Pittsburgh, one Cambria, at Johnstown, Iroquois in Illinois, Brier Hill, in Ohio, Allegheny and Salem, in Virginia, and one Colorado. The most marked reduction in the output has taken place in Illinois, where the Illinois Steel Company have blown out two furnaces at Joliet and one of the new South Chicago plant. In Pittsburgh one Edgar Thomson is also out, while in the South one Ensley and one Sewanee of the Tennessee Coal, Iron & Railroad Company are idle.

Charcoal Furnaces, December 1.

Location of furnaces.	Total number of stacks.	Number in blast.	Capacity per week.	Number out of blast.	Capacity per week.
New England	13	4	320	9	640
New York	5	1	113	4	470
Pennsylvania	13	3	170	10	770
Maryland	7	3	319	4	380
Virginia	13	1	100	12	727
Ohio	9	4	510	5	443
Kentucky	3	0	0	3	935
Tennessee	7	4	960	3	350
Georgia	3	1	245	2	320
Alabama	13	5	1,320	8	1,605
Michigan	20	10	3,623	10	2,450
Missouri	2	2	611	0	0
Wisconsin	4	2	1,193	2	465
Texas	4	0	0	4	904
Washington	1	0	0	1	170
Oregon	1	1	225	0	0
Totals	118	41	9,509	77	10,429

As compared with previous months, the record of active charcoal furnaces stands as follows:

	Furnaces in blast.	Capacity per week.
December 1, 1892	41	9,509
November 1	42	9,540
October 1	39	9,174
September 1	42	9,657
August 1	41	8,331
July 1	42	9,964
June 1	48	11,613
May 1	40	10,100
April 1	44	10,859
March 1	50	11,734
February 1	49	10,991
January 1	48	11,164
December 1, 1891	52	11,033
November 1	55	11,731
October 1	58	13,159
September 1	56	11,968
August 1	54	10,980
July 1	50	10,801
June 1	44	10,056
May 1	39	9,730
April 1	41	295

March 1	51	10,890
February 1	56	11,365
January 1	59	12,280
December 1, 1890	67	12,738
November 1	70	13,282
October 1	66	13,389
September 1	63	12,904
August 1	59	10,745
July 1	61	12,511
June 1	61	12,312
May 1	52	10,698
April 1	52	10,804
March 1	59	12,606
February 1	58	11,378
January 1	59	11,485
December 1, 1889	66	12,779
November 1	67	12,898
October 1	63	12,047
September 1	60	11,327

There have been blown out during November Standish, in New York; Mount Vernon, in Ohio, and Martel, in Michigan. Catoctin, in Maryland, started on carwheel iron on the 21st ult.

Stocks.

The aggregates of the figures furnished us relating to stocks are as follows, the same furnaces reporting:

Stocks:	Oct. 1. Tons.	Nov. 1. Tons.	Dec. 1. Tons.
Anthracite pig	161,734	141,446	138,863
Coke pig	491,348	450,238	391,686
Charcoal pig	208,135	192,548	189,616
Total	861,217	784,232	720,165

It will be seen that a still further marked reduction in coke iron stocks has taken place, and that there has also been a falling off in the stocks of anthracite and charcoal irons. While not complete, our returns are comprehensive enough to fairly accurately reflect the movement of stocks.

CORRESPONDENCE.

The Radford Pipe Foundry.

To the Editor: In your issue of May 19, 1892, you publish a paper read by Peter B. Wanner, at a meeting of the Board of Trade of Reading, Pa., in reference to the cast-iron pipe industry.

In that article he casts a slur upon some of the Southern works and mentions especially the splendid plant at Radford, Va.

Inasmuch as your valuable periodical has printed that article, I, as a citizen of Radford, think it but justice that you should give the reply, especially as Mr. Wanner has asked for it.

He goes back to the beginning of this century and gives the history of pipe making, showing that previous to 1887 the business was done by very few plants, and the profit to that time was very large, but since then they have been cut down to such small margins that the old plants could not even make necessary repairs and keep their heads above water. Just here he remarks, "If any pipe foundry can show a better record, I should like to hear from them."

He quotes Boston, Lowell, Albany and Philadelphia as points at which this plant had taken contracts, and then remarks: "I regard the movement of the latter (Radford plant) as too full of assurance and unprecedented boldness. If they can fill their orders successfully, in face of the rigid inspection required by these cities, then there will be no longer any art in pipe making without reference to cost."

I now reply to his interrogatory, and point him to that same Radford Pipe and Foundry Company of which he speaks so sneeringly, and inform him that the foundry is still alive. They have not only filled the contracts above named, but a score or more besides in the same section of the country. Their pipes have withstood the "rigid inspection," the contracts have been filled, and those laying and using the pipe are so well pleased that all their neighbors want them and those neighbors are now being supplied. This Radford plant have shipped pipe from their works from Maine to Washington territory, and have even invaded Her Majesty's domains. All are fully satisfied with the work they get and orders are still coming in. They have competed successfully with all the older plants in their own territory; and why?

It is because of cheap material, both of iron and fuel, and of the efficiency of the management and of the plant itself. The best and most approved machinery is used and the best results attained at the least cost. Under the eagle eye of the general superintendent, the watchful care of the manager and the expert fitness of every foreman, everything runs like clock work, every man has his work to do, and those over him see and know that he does it.

This plant asks no favors of any one. All they want is an "open field and fair fight and let the best man win." Mr. Wanner concludes with the remark that "this Southern production is bringing discomfort and ruin to many once happy homes throughout the North." This is a pitiful wail, and all I can say in reply to it is, "Come South, young man."

W. H. BARCLAY.

RADFORD, VA., December 9, 1892.

Washington News.

(*From Our Regular Correspondent.*)

WASHINGTON, D. C., December 13, 1892.

Secretary Tracy, following in the line of the President, has presented in his annual report an interesting *résumé* of the work of the Department of Naval Affairs under his administration.

A copy of the report was to-day placed on the desk of each Senator and Representative. Irrespective of partisan bias on political lines, the document is admitted by all to be of unusual interest. The elimination of politics from naval construction, if not from administration, is one of the best signs of the times in the direction of an intelligent appreciation of the importance of this arm of the service in this day of commercial activity.

The beginning of the new navy was made under that broad-guage statesman, William C. Whitney of New York. When he left off his work the new era had fairly commenced, but the point of development reached was yet small.

On March 4, 1889, the navy of the United States consisted of three steel vessels—"Dolphin," "Atlanta," and "Boston," 7863 tons, mounting 13 6-inch and 4 8-inch guns of foreign material. The shafts were also foreign forged.

During the Harrison Administration now closing the following superb fleet of the most formidable modern craft of their type have been added:

Name of vessel.	Displacement. Tons.	Commissioned.
Chicago	4,500	April 17, 1889
Yorktown	1,700	April 23, 1889
Petrel	890	Dec. 10, 1889
Charleston	4,040	Dec. 26, 1889
Baltimore	4,600	Jan. 7, 1890
Cushing	116	April 22, 1890
Vesuvius	930	June 7, 1890
Philadelphia	4,324	July 29, 1890
San Francisco	4,083	Nov. 15, 1890
Newark	4,083	Feb. 2, 1891
Concord	1,700	Feb. 14, 1891
Bennington	1,700	June 20, 1891
Miantonomoh	3,990	Oct. 27, 1891
Bancroft	838	Dec. 20, 1892
Machias	1,050	Jan. 10, 1893
Monterey	4,138	Jan. 10, 1893
New York	8,150	Jan. 31, 1893
Detroit	2,000	Jan. 31, 1893
Montgomery	2,000	Feb. 28, 1893

This makes an addition of 19 vessels, 54,882 tons, and 106 guns of modern designs from 12 to 6 inch. With the exception of five of the guns every pound of steel and all the labor and skill is the product of American plants and workmen. To this may be added three powerful steel tubs.

To this fleet will be added in the near future 18 more vessels, eight of which, armored battle ships and cruisers, will be the most formidable engines of war afloat, ranging from 6000 to 10,200 tons each.

Name of vessel.	Displacement. Tons.	Name of vessel.	Displacement. Tons.
Oregon	10,200	Monadnock	3,990
Indiana	10,200	Terror	3,990
Massachusetts	10,200	Cincinnati	3,183
Columbia	7,350	Raleigh	3,183
Minneapolis	7,350	Ram	2,185
Maine	6,648	Marblehead	2,000
Texas	6,300	Castine	1,050
Puritan	6,060	Torpedo boat No. 2	120
Olympia	5,500		
Amphitrite	3,990		

These aggregate 93,497 tons and 168 guns of the most destructive calibers, 64 of which are 8 to 13 inch guns.

As these should be in commission within a year, before 1894 the navy of the United States, in modern ships a cipher in 1885, has grown to the splendid dimensions of 37 armored and steel ships of 148,329 tons and carrying 274 guns from 4 to 13 inch caliber. The latest of these ships will be superior to anything of their types in the navies of foreign countries.

The Secretary gives the following summary of naval ordnance.

The following table gives the number of guns completed, partly completed, and afloat:

Caliber of gun.	Completed at date of last report.	Completed this date.	Partly completed.	Afloat.
4-inch	7	35	32	2
5-inch	3	14	31	2
6-inch	117	135	0	90
8-inch	19	23	12	14
10-inch	8	25	0	6
12-inch	1	5	1	2
13-inch	0	0	1	0
Total	155	237	77	119

Of the above, 82 have been completed during the past year. The greatest progress has been made with the rapid-fire gun, of which 28 4-inch and 11 5-inch have been completed since the last report.

The report also summarizes the tests of armor which have already appeared in *The Iron Age*, fully described and illustrated at the time.

A few weeks since we presented the details of the plan for the offering to the public of preferred stock in the Pratt & Whitney Company of Hartford, Conn. A. M. Kidder & Co. of New York and the National Exchange Bank and the American National Bank of Hartford are now authorized to offer for subscription at par $1,250,000 of the 8 per cent. cumulative preferred stock of the Pratt & Whitney Company of Hartford, Conn. The business has been established over 30 years and has been constantly increasing in volume and profits. The authorized capital is $3,000,000, divided into 10,000 shares of common and 20,000 shares of preferred of $100 each, 2500 shares of which remain in the treasury. No bond or mortgage can be put upon the property except by consent of 90 per cent. of the preferred stockholders. The total assets, exclusive of patents and good will, or trade-marks, amount to $2,134,000, being $384,000 in excess of preferred stock now issued.

The Southern Railway & Steamship Association announce that the freight committee of the Central Traffic Association has decided to continue the present arbitraries on pig iron and articles taking same rates north of the Ohio River indefinitely after January 1, 1893.

Mahoning and Shenango Valleys.

The activity in the ranks of the Amalgamated Association for the past month has been very noticeable. It was thought that the failure of Homestead, the sympathy strikes and the secession of a large number of finishers would have a discouraging effect on the Amalgamated Association. Secretary Kilgallon reports that the officers are greatly encouraged over the recent acquisitions, and were really surprised at the increase of membership of most of the lodges throughout the Central States. He says: "Fully two-thirds of the skilled men in rolling mills are now members of the Amalgamated Association, and the others are being gradually brought into it, and more lodges will be added in a short time. We are doing all we can to get the Homestead men who were thrown out of employment positions at other places, and have succeeded in many cases. We intend to pursue a conservative policy, and think the Homestead affair will only act to unite us more firmly than ever, as the Amalgamated Association already is in some respects."

All departments of the Valley Mill operated by the Mahoning Valley Iron Company, Youngstown, are running full, and all friction regarding labor questions has been satisfactorily settled, says J. H. Nutt of the Labor Bureau of the Manufacturers' Association to-day. "I don't know of anything else that will cause trouble."

The 12-inch department of the Hubbard rolling mill has closed down for an indefinite period. Lack of orders is the cause given.

Fire broke out at Summers Brothers' mill at Struthers last Friday morning, but was discovered and extinguished before much damage was done.

Wm. Tod & Co., Youngstown, are making engines and gearing for the new sheet mill of the Ellwood Steel Company, Ellwood City, Pa. They report inquiry for large engines and heavy machinery quite brisk at present, and that they are crowded with work for delivery in the immediate future.

The Youngstown Stamping Company, manufacturers of tinware, are working on large orders for oil cans and general house tinware. They have been much behind on their orders of late, and the present prospects are that there will be a large tin trade next year.

The Ohio Steel Company, Youngstown, have let the contract for the erection of their large machine shop and carpenter shop, and work will progress on these structures as fast as the weather will permit. The company are now considering the engine and machinery question, and will probably place their orders in a few days.

NEW PUBLICATIONS.

COALS AND COKES IN WEST VIRGINIA.—By William Seymour Edwards: Cincinnati, Robert Clarke & Co.

Mr. Edwards, of Charleston, W. Va., has just published a pamphlet, nearly rising to the dignity of a book, on the Coal and Coke Resources of West Virginia, dealing largely with some of the less known sections now being opened up. He prints an account of the Kanawha district which is so widely and favorably known, and then takes up the Coal River district, and describes the Kenova and the Guyandotte districts. The Coal River district is as yet dormant, work not having been resumed in it since the war. Previous to that time it was one of the more important sources of coal supply. The Twelve Pole or Kenova district is just being opened by the construction of the Ohio Division of the Norwalk and Western Railroad, four companies having begun active operations in it. Splint and cannel coals are its chief reliances. The Freeport, or as it is locally known, the "Ferguson," district, furnishes excessive beds of cannel coal. The Guyandotte or Logan Court-House district has one characteristic seam in the upper series called the Floyd, and one in the lower series called the Island Creek seam. The New River District, which was opened in 1873, is well-known and produces considerable coking coal, there being 818 ovens in blast. The Upper Elk River and Gauley River Districts are being opened by the Pittsburgh & West Virginia Railroad, a branch of the Baltimore & Ohio, and is likely to soon become one of more important coal and coke districts of the country. Mr. Edwards finally touches upon the Flat Top region.

In discussing costs, Mr. Edwards presents figures to show that the cost of manufacturing coke in the Kanawha district is 0.5463 cents, exclusive of cost of coal. With the latter for crushed coal the total figures up to 1.6296. It is estimated that in the New River District the cost is 5 to 7 cents less. A very interesting chapter follows upon the general facilities and cost of transportation of coal from the mines to market both by river and by rail.

The first part of the work deals with the thickness of the seams and of the geological measure. Analyses of the different coals and cokes have also been compiled. Altogether it is an interesting contribution concerning the coal resources of West Virginia, which has and deserves the distinction of being the richest State in the Union in this industry.

FIRST REPORT BUREAU OF MINES OF ONTARIO. Published by the Bureau of Mines, Toronto, Canada; Archibald Blue, director.

Very strong efforts have been made during the past few years on the part of those interested in the Canadian Government to develop its mineral resources as the first step toward the establishment of industrial enterprises. One of the methods pursued has been to follow the example of a good many of our own States in establishing a Bureau of Mines, equivalent to some of our State Geological Surveys. During the year 1891 the total value of the mineral production of the Province of Ontario was $4,705,673, which includes $1,000,000 for building stone, $950,000 for common brick and $1,209,558 for 894,647 barrels of crude petroleum. The eight nickel mines produced 85,790 tons of nickel ore, converted into nickel matte. Of the latter, 4536 tons, containing about 900 tons of nickel, was bought by the United States Government for armor purposes. The report before us goes very largely into the question of mineral leases and royalties, quoting extensively from the report of the Royal Commission. It contains also chapters on artesian wells, on the geology of the country north of Lake Huron, on natural gas in Canada and in the United States, and presents also the best general summary of the state of the art in the utilization of peat as fuel.

William McCabe, Jr., died at Clifton Springs, December 6, of consumption. He was a native of Canandaigua, N. Y., and was prominent in business circles, having been president of the Clifton Springs Mfg. Company, and interested in other industries.

The plans and drawings for the new revenue cutter, "William Winslow," are about completed and the work of building the vessel will commence in a short time at the Iowa Iron Works, at Dubuque, Iowa.

San Francisco News.

This week the Fulton Foundry & Ship Works, that is to be, will begin to remove its headquarters to North Beach and break ground for future operations. It is now the intention to make the ship building feature prominent, so that the Union Iron Works will, in the near future, have to stand the competition of a formidable rival. The Belt Railway will soon render each and every part of our water front equally accessible, and we expect to see this part of the city lined in a few years with establishments working in iron and steel. This may seem venturing on too hazardous a prediction, but a change is coming over San Francisco in this matter slowly but surely, and after a while its progress will be more rapid.

Imports by sea for the past two weeks have been large. Four clippers have come to hand from Atlantic ports—the "John A. Briggs" from Philadelphia, the "L. Schepp," the "Manuel Llaguna" and the "Chas. E. Moody" from New York. The "City of Sydney," from Panama, added its quota to the heavy assortment of merchandise. An unusually large proportion of the cargoes of all the vessels consisted of hardware, iron and steel, nails, wire, hardware, &c. Stocks are accumulating steadily, and when the spring comes round it will find San Francisco hardware merchants with a good stock of iron and steel, hardware, &c., imported at a low rate of freight. Our merchants will begin again to control the market in many places in California, Oregon, Washington, &c., where they have not been able to trade or to do so on only a small scale for many a long year.

The pig iron market has still remained quiet and dull at former figures. The "L. Schepp," from Philadelphia, brought to hand 300 tons of Alabama. The "Lodore" brought 250 tons of English pig iron. It will be noted by those who have followed this series of letters that the imports of pig iron for some time past have been very light. The quantity melted has been light, but still stocks have been going down.

Nails remain low and weak, though there has been a considerable distribution during the season. The "Chas. E. N. Moody" has brought the largest assortment reaching this port by sea for a long time—over 11,000 kegs—making over 80,000 kegs by sea this year to date.

The cut in pipe has reached this point, and purchasers will now reap the benefit.

There has been little or nothing to say in connection with pig tin or tin-plate for some time. The former is still quotable at 23 cents; the latter at $5.87½. There have been no arrivals for some time. Of pig tin the Mariposa brought to hand 1700 pigs. There has been a very fair business in progress in all the various branches of the hardware trade and in merchant iron, but gradually the volume of sales begins to decrease. From now on to the end of the year we may expect business gradually to decrease. The first rains—that is, the first rains of the season—of any importance have fallen during the week, and have set to work plows all over the State by scores of thousands. The prospects for crops for next year are good; and although the business of 1892 has been, on the whole, quiet and that of 1891 not as active as desirable, still the general impression is that the next will be a good business year.

Imports by rail for the past two weeks have been: The total equaled 62 cars. Of this there were 9 cars of iron, 5 of steel, 6 of hardware, 7 of stoves, 10 of agricultural implements, 2 of wire, 3 of pipe, 1 of shoes, 13 of machinery, 2 of wheels, 1 of washers, 1 of safes, 1 of chains, 1 locomotive, besides 7444 pounds of copper, 25,549 of zinc, 1200 kegs nails.

Trade Publications.

F. G. HESSE, professor of mechanical and electrical engineering at the University of California, has just published the results of a series of tests made upon wire ropes manufactured by the California Wire Works of San Francisco, Cal. There are a series of tables showing the tests of breaking loads of flexible and coarse galvanized basic steel wire ropes and of flexible and coarse crucible wire ropes, together with tables showing the efficiency of the rope as compared with the wires and with the strands composing it. The average efficiency of the strands as compared to the wire composing them was 86.5 per cent. in the case of the flexible basic steel wire strands, 86 per cent. with the flexible crucible steel strands, 93 per cent. with the flexible galvanized basic steel strands, 85 per cent. with the coarse crucible steel strands, 87 per cent with the coarse basic steel galvanized strands, and 92 per cent. with the coarse basic steel strands.

THE JOHN A. WHITE COMPANY of Dover, N. H., manufacturers of standard wood-working machinery, have issued an elaborately illustrated catalogue of their band saws, circular saws, planers, boring machines, mortising machines, &c. In their introduction they state:

It is a fact fully appreciated by the best mechanics that good tools are necessary to make good tools; and the steadily increasing demand for first-class productions in every line of mechanical work has, during the past few years, wrought a great change in the class of iron and wood-working tools supplied by leading manufacturers. Apparatus which ten or even five years ago would have been considered as first-class is to-day relegated to the scrap heap to give way to machinery embodying, perhaps, no important changes, but more carefully designed and built, and capable of greater precision and convenience in operation. This gradual evolution of shop machinery has naturally been most noticeable in iron-working tools; but a careful examination of the work turned out by leading manufacturers of wood-working machinery to-day will show that they too have been obliged to recognize this tendency, or give place to their more enterprising competitors. While some alleged mechanics are still to be found who believe that cheap and poorly-constructed machinery is all right in the pattern and carpenter shop, the majority of successful manufacturers are to-day realizing more and more fully that, in order to produce work which shall be satisfactory to their customers, they must have a first-class equipment throughout, and beginning at the saw bench and planer rather than at the machine lathe and gear cutter. It is a noticeable fact that only a very few manufacturers of wood-working tools in the United States make any pretence of having the various parts of their apparatus made to gauge and interchangeable; while in many cases where this claim is made it is found to exist principally in the imagination of the sales agents. Surely no good reason can exist—except in the lack of demand for such apparatus—why this principle should not be applied to wood-working machinery as well as in other lines, as we stoutly maintain that the class of customers requiring first-class machinery is now sufficiently large to warrant the necessary expenditure and initial outlay for producing such interchangeably-built apparatus. With this end in view the John A White Company have recently acquired a new and perfectly equipped plant, conveniently situated for receiving supplies and shipping their product; and have completely overhauled their entire equipment, placing them among the foremost of New England manufacturing concerns.

THE CONGDON BRAKE SHOE COMPANY of Chicago have issued a very dainty *brochure*, calling the attention of the trade to their facilities for the production of iron and steel castings. Directions are given for the preparation of patterns for steel casting work. The company announce that they are in readiness to furnish locomotive, car and track castings of all kinds for railroad work; rolls, bearings, gears, couplings, &c., for rolling-mill work; dies, cams, Cornish rolls, stamps, &c., for mining machinery; return bends, tees, &c., for ice machinery, as well as general miscellaneous work, in either open-hearth or crucible steel, as desired.

THE REEVES IRON COMPANY of Canal Dover, Ohio, have just issued a neat price-list, covering the various products of their rolling mills. These products include Dover Juniata galvanized iron, block sheet iron and sheet steel, from 10 to 30 gauge, merchant bar iron in three grades—common, refined and double refined—and special irons and soft steel for all purposes, including machine straightened iron and steel-buggy tires, shafting, small T-rails, &c. They print the following iron card, for which they claim special merit in arrangement:

Merchant Bar Iron.

Western Classification.

	Advance.
ROUNDS AND SQUARES.	
3-16	$3.00
¼	1.00
5-16	.80
⅜	.60
½ to 7-16	.40
⅝ to 9-16	.20
¾ to ⅞	.10
1 to 1⅞	Base.
2 to 2⅝	.20
2¾ to 3¼	.50
3⅜ to 4	1 00
4¼ to 4½	1.50
2 to 4½ inch rounds and squares, over 18 feet long	.30
LIGHT BANDS.	
⅛ inch by Nos. 10, 11 and 12	1.90
9-16 and ⅝ by Nos. 10, 11 and 12	1.60
11-16 and ¾ by Nos. 10, 11 and 12	1.30
13-16 and ⅞ by Nos. 10, 11 and 12	1.00
1 to 1¾ by Nos. 10, 11 and 12	.70
1¼ to 6 by Nos. 10, 11 and 12	60
⅛ by Nos. 9 to 3-16	1 80
9-16 and ⅝ by Nos. 9 to 3-16	1.50
11-16 and ¾ by Nos. 9 to 3-16	1.20
13-16 and ⅞ by Nos. 9 to 3-16	.90
1 to 1⅜	.60
1½ to 6 inch by Nos. 9 to 3-16	.50
HEAVY BANDS.	
⅛ and 5/16 by ¼ and 5-16	1.00
⅜ to ⅞ by ¼ and 5-16	.50
1 to 1⅜ by ¼ and 5-16	.30
1½ to 3¼ by ¼ and 5-16	.20
3½ to 6 by ¼ and 5-16	.20
6¼ to 8 by ¼ and 5-16	1.20
FLAT BARS.	
⅝, ¾ and ⅞ by ⅜ to ⅝	.40
1 and 1¼ by ⅜ to ¾	.20
1¼ and 1⅜ by ⅜ to ¾	.10
1½ to 4 by ⅜ to 1 inch	Base.
4¼ to 6 by ⅜ to 1	.10
6¼ to 7 by ⅜ to 1	.80
7¼ to 8 by ⅜ to 1	1.00
1¾ to 6 by 1¼ to 1½	.40
6¼ to 8 by 1⅜ to 1⅝	1.30
6 to 8 by 1¾ to 3	1.70
Large flats over 22 feet long	.20
OVALS.	
⅝ and 7-16 inch	1.20
½ and 9-16 inch	.80
⅝ to ¾ inch	.60
⅞ to 1½ inch	.40
HALF OVAL AND HALF ROUND.	
⅜ and 7-16 inch	3.00
½ and 9-16 inch	1.50
⅝ to ¾ inch	1.20
⅞ to 1¼ inch	.70
1 ⅛ to 3 inch	1.10
BEVEL BOX IRON.	
¾-inch, Nos. 11 and 12	1 30
¾-inch, Nos. 13 and 14	1.50
⅞-inch, Nos. 11 and 12	1.00
⅞-inch, Nos. 13 and 14	1.20
HOOPS.	
⅛ inch by Nos. 16, 17 and 18	2.60
⅛ inch by Nos. 13, 14 and 15	2.50
9-16 inch by Nos. 16, 17 and 18	2.40
9-16 inch by Nos. 13, 14 and 15	2.20
⅝ inch by Nos. 16, 17 and 18	2.20
⅝ inch by Nos. 13, 14 and 15	2.00
11-16 inch by Nos. 16, 17 and 18	1.90
11-16 inch by Nos. 13, 14 and 15	1.70
¾ inch by Nos. 16, 17 and 18	1.70
¾ inch by Nos. 13, 14 and 15	1.50
13-16 inch by Nos. 16, 17 and 18	1.50
13-16 inch by Nos. 13, 14 and 15	1.40
⅞ inch by Nos. 16, 17 and 18	1.30
⅞ inch by Nos. 13, 14 and 15	1.20
15-16 and 1 by 16, 17 and 18	1.10
15-16 and 1 by 13, 14 and 15	1.00
1⅛ to 1⅜, 16, 17 and 18	1.10
1⅛ to 1⅜, 13, 14 and 15	1.00
1 7-16 to 2, 17 and 18	1.00
1 7-16 to 3 by 13, 14, 15 and 16	.90
HORSE SHOE.	
Refined, all sizes	1.00
Double refined, "Dover"	1.50

The company have largely increased their line of sizes of bar iron, as indicated above. The price list also contains considerable interesting tabular matter, giving weights of sheets, number in a bundle, weights of bar iron, &c. W. C. Brown, 45 LaSalle street, Chicago, is Western manager for the company.

The new lighthouse to be built near Keyport, N. J., will be of steel plates and be 100 feet high.

MANUFACTURING.

Iron and Steel.

A report is going that a large tin-plate firm in Wales are negotiating with the Board of Trade at Hollidaysburg, Pa., with a view of removing their plant from Wales to that place.

The Tyrone Iron Company of Tyrone. Pa., recently notified their employees that a reduction of wages would be made. At a meeting between members of the firm and their employees the skilled workmen agreed to accept a reduction of 10 per cent. on condition that wages of the laboring men would not be disturbed

The Millvale Iron & Steel Company, Limited, of Pittsburgh, signed the Amalgamated Associaton scale last week and started up the puddling department of their plant, which has been idle for some months. It is probable other departments will be put in operation in the near future.

The Beaver Falls Mills of Carnegie Steel Company, Limited, including the rod mill, wire mill and wire nail factory, are now in full operation. On Thursday of last week the wire nail mill was put on double turn and will turn out about 2500 kegs of wire nails every 24 hours.

It is said that a large number of men formerly employed at the Bessemer plant of the Shenango Valley Steel Company, at New Castle, Pa., and who originally went from Beaver Falls have returned to that place and accepted positions in the Beaver Falls mills of the Carnegie Steel Company, Limited. As this plant is non-union, the action of these men in going to work without authority from the Amalgamated Association places them in the light of deserters from that organization, and it is stated that they will be expelled.

Last week the Oliver Iron & Steel Company of Pittsburgh closed down their beam mill, universal mill, plate mill and 8, 10 and 20 inch mills of their Upper mills plant located on Fifteenth street, S S., Pittsburgh. The reason given for the closing down of these departments is that large stocks have accumulated and few orders were being received, which made a cessation of operations necessary. Much of the work formerly done at the Fifteenth street plant can be turned out equally as well at the Tenth street mills of the firm.

Wallace, Banfield & Co., Limited, operating the Irondale Rolling Mill at Irondale, Ohio, and manufacturers of tin and terne plates, have placed an order with the Leechburg Foundry & Machine Company of Pittsburgh for a large amount of tin-plate machinery, including an automatic pickling machine of the Mesta type. This is the second Mesta pickling machine ordered by this firm.

A press dispatch from Youngstown, Ohio, under date of the 10th inst. states that a syndicate of capitalists of New York city are pushing a deal to purchase all the rolling mills and blast furnace properties in the Mahoning Valley and unite them in a gigantic combination under one management. The deal is being manipulated by John A. Logan Campbell, a leading attorney of Youngstown, who has the matter in charge. The big properties proposed to be secured are the mills and furnaces of the Brown-Bonnell Iron Company, the Andrews Iron Company, the Briar Hill Iron & Coal Company, the Mahoning Valley Iron Company, the Ohio Iron & Steel Company, the Andrews & Hitchcock Company, the mills of the Youngstown Iron & Steel Company located there and in Girard and Warren, Ohio. The total amount to be paid for these plants is $7,000,000. A portion of those interested have already agreed to accept the terms offered, while others object to paying the commission involved, believing that it should be paid by the purchasers. If the deal goes through, which is considered probable, the transfers will be made immediately after January 1.

Last week the United States Iron & Tin Plate Company at Demmler Post Office, Pa., completed and put in operation two additional cold roll mills. This addition to their equipment will allow this firm to coat a still larger portion of their products of sheets than they have yet been able to do. The large demand for the U. S. brand of tin and terne plates has made this addition to the capacity of the firm absolutely necessary.

The United States Cold Wire Rolling Company, capitalized at $500,000, will build a plant at Hammond, Ind.

The Eagle Iron & Steel Company of Ironton, Ohio, have under consideration the question of adding a 10-inch mill to their equipment. During the past two months this firm have put in two double puddling furnaces with porcupine boilers of 100 horse-power each attached to them

The Pottstown Iron Company of Pottstown, Pa , have posted at the entrance to their works the names of the employees who failed to agree to their terms in the plate mill department, and the watchman has received orders not to allow any of these men to enter the works of the firm.

An error was made in this column last week in stating that the Mary Furnace, at Lowellville, Ohio, would be started up soon. This furnace has been in constant operation except for two months during the summer, when it was idle for repairs. It is also stated that there is no possibility of the Anna Furnace, at Struthers, Ohio, resuming operations at an early date.

Machinery.

The Cleveland Twist Drill Company of Cleveland, Ohio, have just turned out for a prominent engine manufacturing company of Pennsylvania what is probably the largest solid milling cutter ever made. This cutter is 21 inches long, 5 inches in diameter, finished size, with a 2-inch hole for arbor and a keyway through the entire length. The steel in the rough state weighed 150 pounds. Considerable anxiety was felt when the tool was ready to plunge into the hardening bath, but it was successfully tempered and finished without crack or blemish.

The Lodge & Shipley Machine Tool Company of Cincinnati, Ohio, have orders for their new pulley lathes, gear lathes and turret lathes sufficient to keep them running for two months, and are constantly increasing their working force.

The increase of the capitalization of the Holly Company of Lockport, N. Y., is having its effect. The old machinery is being rapidly broken up and sent to the cupola, while an expert is replacing it with devices of the latest design. The establishment is being generally improved. The company have just finished a pumping engine for Fort Worth, Texas, with a capacity of 10,000,000 gallons.

The Cowles Engineering Company of this city are establishing a shipbuilding plant in South Brooklyn on a scale sufficient for the construction of a full-sized modern iron ship, and will expend $500,000 in preparatory work.

The last heat at the Troy, N. Y., Malleable Iron Works was run Thursday, December 8. The engine in the pattern room has been removed to the new West Troy plant, and the works are practically closed. The company's new works have been running some time, but the force has been increased by the men taken from the Ida Hill, Troy, plant. The West Troy branch comprises the Albany and Troy works, and is a monster plant. The Albany branch has been closed for several weeks past, but the plant at Troy has been suspended gradually. The Malleable Iron Company have advertised for sale the buildings on the Fourteenth street property, to be removed at once. The lots will then be disposed of for building purposes. The largest part of the stock of the company has been removed to West Troy, but a week or so will elapse before everything has been transferred to the new plant.

Israel H. Johnson Iron Company of Philadelphia, Pa., have just completed a 48-inch by 17-foot engine lathe, which they built for the Weston Engine Company of Painted Post, N. Y. It is the same size as the five which they built for the ordnance shop at the Washington Navy Yard. It also has the same style 48-inch independent four-jawed chuck of their own make on it. They are very busy on heavy lathes and special machinery, and expect to close a contract with a company in the West for complete outfit of lathes ranging in size from 63-inch driving down to 17-inch swing. They also expect an order from France.

The new plant of the Bucyrus Steam Shovel & Dredge Works, at South Milwaukee, Wis., will be fitted with new machinery throughout so that the business of the company will not be interfered with by the removal from Bucyrus. Electricity will be largely used as the motive power in the new works.

It is stated that E. C. Morris & Co., safe manufacturers, will erect a plant near Boston for making bank vaults and fire-proof safes.

The Michigan Peninsular Car Company of Detroit are arranging to rebuild on a larger scale an improved plant to replace their forge works lately destroyed by fire.

The foundry department of the Exeter Brass Works, Exeter, Vt., has been enlarged by 400 feet additional floor room and the building of two new furnaces.

The annealing department and office building of the National Malleable Casting Company of Toledo, Ohio, have been burned, at a loss of $75,000.

The Marden Smokeless Boiler Company have been incorporated at Portland, Me., with a capital of $150,000, for the purpose of manufacturing steam boilers and furnaces.

The machinists in the gunshops of the Watervliet arsenal, at West Troy, N. Y., who struck in sympathy with two men who refused to operate two lathes, have returned to work.

The Fulton Iron & Engine Works of Detroit, Mich., will build a new foundry in connection with their present plant.

The Bradley Fertilizer Company have erected a complete plant at the foot of Thirty-ninth street, Brooklyn, for the purpose of showing the Griffin mill to those interested in grinding. The mill is installed to grind in ordinary way up to 100 mesh. Beyond this point and up to 250 mesh a system of air separation is connected.

Jos. B. Reed, Cairo, Ill., reports an active demand for the lines of machinery carried by him. During the past few weeks he reports the following sales as having been made: To the Missouri Railroad Company, St. Louis, a complete outfit for their repair shop, consisting of a 22-inch lathe, 28-inch shaper, 25-inch drill and other smaller tools; to L. M. Rumsey Mfg. Company, St. Louis, one 28-inch lathe; to Medart Pulley Company, St. Louis, two 19-inch lathes and one each 24-inch and 28-inch lathes; to Colorado Springs Rapid Transit Company, Colorado Springs, Col., one 26-inch lathe, one 28-inch shaper, one 25-inch drill, emery grinders, power fan, shafting, pulleys, hangers and a set of small tools; to American Car Company, St. Louis, one 26-inch lathe and 21-inch shaper; to Weisel & Vilter Mfg. Company, Milwaukee, Wis., one 28-inch lathe.

Miscellaneous.

The Bushnell Car Seat Company have been organized and chartered under the laws of Pennsylvania, and will remove their plant from Poughkeepsie, N. Y., to Odenweldertown, Pa. Plans for the new works have been completed and the work of construction will be carried through rapidly.

The Sagendorph Iron Roofing & Corrugating Company of Cincinnati, Ohio, have suffered a loss by fire amounting to $75,000; insurance, $50,000.

The Southern Pacific Railway officials are reported to have signed an agreement to transfer to Ogden, Utah, their car shops now located at Carlin and Terrace. The consideration is a bonus of money and material amounting to $30,000.

The George Sweet Mfg. Company of Dansville, N. Y., were incorporated at the Secretary of State's office, Albany, December 9, with a capital of $48,000, for the manufacture of agricultural implements. The directors are George Sweet, Albert Sweet, James E. Chrisfield, Charles H. Nichols of Dansville and Byron W. French of Chicago.

The Burgess Gun Company of Buffalo, N. Y., are moving their machinery from the Francis Building on Niagara street to their fine new plant on the Military road, where the manufacture of guns will soon be begun.

The Walter A. Wood Company of Hoosick Falls, N. Y., have just added a large galvanized iron blow pipe, 2229 feet long. The pipe is in two sections, the first extending from the wood shop to the reservoir for shavings over the boiler room of the brass foundry. It is used to convey shavings for use in the boiler room. The pipe in the first section is 27 inches in diameter. The second section extends from the boiler room across the brass foundry, barrel room and scratch shop and into the main shop. It passes through the shop and to the Hoosick River. It is 26 inches in diameter and conveys refuse from the boiler room of the brass foundry. The pipe has been erected under the supervision of Wm. A. Murray of the New York Exhaust & Blow Pipe Company of Hartford, Conn. It is the longest iron blow pipe the company have ever erected.

The new railway shops of the New York Central at Depew, near Buffalo, N. Y., will be ready for occupancy by January 1.

The California Tire Upsetter Company have been organized at Bridgeport, Conn., for the manufacture of the patented California tire upsetter. The capital stock is $22,400.

The Berlin Iron Bridge Company of East Berlin, Conn., have the contract for three new iron buildings and iron roofs for the East River Gas Company to be built at Ravenswood, L. I.

Among recently authorized corporations in Illinois are the following: The Chicago General Street Railway Company, Chicago; capital stock, $3,000,000; incorporators, Lyman M. Paine, H. L. Burnette and Charles L. Hull. The Duffy & Lovelock Tool Company, Chicago; capital stock, $25,000; incorporators, James T. Duffy, George M. Lovelock and Arthur Brittan. The Woman's Inventions Company, at Chicago; capital stock, $100,000; incorporators, Caroline Westcott Romney, Sarah F. K. Burgess and Mary Linda Allen. Hill & Beatty Harness Company, at Decatur; capital stock, $40,000; incorporators, James L. Hill, James C. Beatty and others. Towne Furnace Company, Chicago; capital stock, $50,000; incorporators, Richard H. Towne, August Ginzlinger and Abram E. Mabie. The Chicago Underground Subway Company, Chicago; capital stock, $2,000,000; incorporators, Joseph J. Duffy and Thomas J. McNichols. The Kingsland Automatic Boiler Flue Scraper Company, Chicago; capital stock, $200,000; incorporators, Philip S. Kingsland, W. L. Marston and F. B. Modica.

The Electrical Copper Refining Company of Ansonia, Conn., have increased their capital stock from $50,000 to $157,000, with a view to enlarging and improving their plant, by which the capacity will be doubled.

The iron foundry at the old Agricultural Works, Norristown, Pa., has been leased by Belneld & Co. of Philadelphia, who will utilize it to manufacture radiators and other castings. Additional buildings will be erected.

Work will shortly begin at Whiting, Ind., on car works to be erected by the National Transit Company, who will remove their business from Cleveland.

The Louisville, New Albany & Chicago Railway Company have contracted with the Haskell & Barker Car Company of Michigan City, Ind., for 200 standard coal cars, to cost $400 each, and 50 standard stock cars, to cost $455 each, and to be delivered during or before January, 1893.

It is said that the Cosgrove Safe Works will establish works at Salt Lake City, Utah. The main building will be 250 x 250 feet, and $200,000 will be invested in the plant.

A. C. Williams' sad-iron factory at Chagrin Falls, Ohio, has been burned at a loss of $35,000. It was partly insured, and will be rebuilt.

The Tacony Iron & Metal Company of Tacony, Philadelphia, Pa., have been awarded the contract for the ornamental cast-iron work for the upper portion of the new Congressional Library Building at Washington.

Fire in the repair shops of the East Cleveland Railroad Company, at Lake View, Cleveland, Ohio, did damage to the amount of $25,000.

The japan furnace of the Weld Mfg. Company's plant, at Bridgeport, Conn., recently exploded, tearing away the side of the building.

The Canda Cattle Car Company of New York were incorporated at Albany, N. Y., December 2. The incorporators are: Chas. S. Fairchild, Valentine P. Snyder, Frederick Hudson, F. Mora Canda of New York, and Winthrop Pond of Brooklyn. The stock of the corporation is $800,000, of which $50,000 is common stock and $750,000 preferred. The par value is $100 per share.

Among recently authorized corporations in Illinois are the following: Hawley Down Draft Furnace Company, at Chicago; capita stock, $500,000; incorporators, Thomas Crattyl C. E. Cleveland and W. B. Jarvis. Blackschmidt Self-Oiling Wheel Company, Chicago; capital stock, $50,000; incorporators, Harold H. Plows, John A. Brewer and H. L. Conrad. Hadduck Railway Material Company, Chicago; capital stock, $20,000; incorporators, Frederick W. Moore, Glenn E. Plumb, F. W. Pringle. Andrews Wire & Iron Works, Rockford; capital stock, $20,000; incorporators, Charles Andrews, Sr., Charles Andrews, Jr., and George Collins. The Harter Electric Company, Chicago; capital stock, $10,000; incorporators, Gustav A. Harter, Samuel S. Parks and Eben F. Runyan, Jr. The Rock Island Iron Works, Rock Island; capital stock, $15,000; incorporators, George Downing, Sr., James Downing, Thomas Downing and Samuel M. Campbell. Inland White Lead Company, Chicago; capital stock, $20,000; incorporators, Frederick W. Moore, Glenn E. Plumb and F. W. Pringle. Mills Pneumatic Gate Company, Chicago; capital stock, $200,000; incorporators, F. W. Mills, H. S. Mills and Edward Arnold.

The results of the manual training school in Philadelphia are beginning to be seen, although its first class graduated only four years ago. About 70 per cent. are in industrial pursuits. Valuable positions are held by them in the engineering department of the Bethlehem Iron Company's Works at Bethlehem, and on the engineering corps of the Pennsylvania & Philadelphia & Reading railroads. The chemist of the Rockhill Iron Company is a manual graduate; three are employed by the Pencoyd Iron Works, while 16 are engaged at Queen's shops at Ardmore.

TRADE REPORT.

Our monthly blast furnace report shows that while production increased during November at the rate of about 22,000 tons a month, there has been a reduction of stock, so far as our reports go, of about 64,000 tons. This indicates that statistically, the position has been still improving. While consumption has, therefore, been at the rate of about 800,000 tons in November, there is little doubt that the amount of Iron melted will fall off very materially during the next four weeks, since Steel works, rolling mills and foundries generally close down temporarily for the annual stock taking and repairs. It is this which is making buyers indifferent, and is causing the dullness in all the leading markets on Foundry and Forge Irons. It is causing some pressure to sell on the part of the smaller producers and is leading to the signs of weakness which crop up in different primary markets.

Bessemer Pig is lower in Pittsburgh, and the market is disturbed by reports relating to at least one large transaction at private terms.

The low price of Billets, with its attendant lack of work for the puddling mills, is beginning to tell on Forge Iron, which is easier in Pittsburgh.

In Billets there comes the report from Pittsburgh that a Cleveland concern has been able to contract for 9000 tons at $21.60 at sellers' mill. Still $22 and $22.50 is being paid for round lots when delivery is restricted to a certain time.

The situation in Structural and Plate trades is somewhat peculiar. A very large amount of business is in sight. Our Philadelphia correspondent estimates the quantity in the Eastern territory, outside of current requirements, at 40,000 tons, which includes the Cramp ship work, and 8000 tons of Light Steel Plates for a Pipe line.

From Chicago comes the report that 3000 to 3500 tons has been taken by an Eastern mill for the World's Fair Tower. The Carnegie Steel Company (Limited), have been awarded the contract for the elevated work.

There is evidence that a number of large office buildings will be put up in our leading cities, so that the future seems to hold out good promise.

And yet for the moment the mills are getting to the end of their orders for Plates and Structural Material, and reports of low figures are cropping outin all the leading markets, the anxiety being to se cure early specifications.

In Bars, Wire, Nails and Fencing the reports are not generally encouraging. The Pipe trade is growing dull, and with it Skelp is suffering East and West.

There have been very few developments of interest in the Metal trade. Copper is quiet. Tin has had a spasmodic speculative movement upward, relapsing later in the week. Lead has scored a fair amount of transactions for prompt and future delivery at 3¼¢. Spelter is fairly steady at 4⅛¢. There have been moderate sales of Tin Plate, and the market is easier in Bright Charcoals and Terne Plates.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St.
PHILADELPHIA, Pa., December 13, 1892.

The week has not been one in which any large transactions have been made, but there have been indications which point to a very encouraging degree of activity in the near future. As a matter of fact, there is more actual business in sight than there has been for years past, although it does not count for as much, because of the enormous capacity for production. Inquiries for work absolutely certain of being commenced within a very brief period amount to very close to 40,000 tons of Finished Material, besides which there is the regular run of smaller orders, which in the aggregate is at least a full average. This ought to put things in good shape, but in the meanwhile prices are "a little shaky," and anything that buyers are ready to close at once can be done at extremely low figures. This condition of affairs will probably continue until some ofthe large contracts are closed, as every mill owner will try to start the new year with at least two or three weeks' work in hand. So far, however, comparatively little has been given out, although it is expected that a liberal distribution will be made before the close of the year. The special work referred to is something over 20,000 tons for the shipyards, 8000 tons of light Steel Plates for Riveted Pipe, besides a large amount of bridge and elevated work. Taking it all in all, therefore, prospects are favorable for a large amount of work, but not specially encouraging as regards prices.

Pig Iron.—One word defines the whole situation—dull. Prices are not weak, neither are they strong, but absolutely featureless. This implies as much indifference on the part of sellers as among buyers; the latter don't care about buying, the former don't care about selling. The reasons for this condition of apathy are not hard to find, being on the one side a conviction that there is not the slightest danger of an advance, and on the other a certainty that they cannot afford to sell for less money. With such surroundings it is impossible to make any extended comment, as for the present there is no room for speculation on either side of the question. Careful inquiry among the trade throws no new light on the subject, except to confirm the opinion against a decline. Makers are very emphatic in the assertion that so far as they are concerned furnaces must be "blown out" unless current quotations can be realized. The only possibility that seems to present itself is cheaper Ores, but even that is likely to be offset by higher freights, which, indeed, is one of the strongest reasons sellers give for not being anxious to enter large orders at present prices. Ores are extremely low, however, and it is not improbable that makers will gain a little in that direction, but in any case the variation in the price of Pig metal is not likely to be more than a few cents per ton, so that both sides feel that they can afford to wait developments. The next two or three weeks will be a trying time, however, and if there are any weak spots they will probably be made manifest. Meanwhile bids at 25¢ below the market seem to have had no effect, so that for the present prices for Philadelphia and nearby deliveries are steady as the following figures, with the usual concessions for Southern Irons delivered at points 100 miles or so south or west:

American Scotch, No. 1x	$17.00	@	$17 25
American Scotch, No. 2x	16.00	@	16 25
Standard Penna. (Lake Ore), No. 1x	15.00	@	15.50
Standard Penna. (Lake Ore), No. 2x	14 25	@	14.50
Standard Penna. (Lake Ore), No. 2 plain	13.50	@	13.75
Medium Quality, No. 1x	14.50	@	14.75
Medium Quality, No. 2x	14.00	@	14.25
Standard Virginia, No. 1x	14.75	@	15.00
Standard Virginia, No. 2x	14.00	@	14.50
Virginia and Southern, No. 1x. Soft		@	14.50
Virginia and Southern, No. 2x. Soft		@	13.75
Standard Penna. and Virginia Forge	13.25	@	13.50
Ordinary Forge	12.75	@	13.00

Bessemer and Low Phosphorus Pig.—Business is not on a very large scale in this vicinity, but sales of Standard Bessemer are reported at about $16 at furnace, and of Low Phosphorus at $17.75 @ $18.

Steel Rails.—There is nothing in the immediate situation to show that that there is any change present or prospective. Orders are chiefly for small lots, and prices firm at $30 f.o.b. cars at mills.

Steel Billets.—Prices are more or less a matter of opinion, as there is not sufficient business to fairly test the market. A few small lots of extra quality have been taken at about $26 for quick delivery, while ordinary Soft Steel from the West has been offered at $24.75 for January and February, but without leading to business. Opinions vary in regard to the ultimate outcome, but the mere fact that buyers are not taking them at $24.75 shows what their ideas are, especially when an advance in freights is looked for. Bids are not forthcoming for large lots, so that the market may be called dull and heavy at about $24.75 asked for ordinary Soft Steel, Schuylkill Valley or equivalent points, and $24 25 in the Susquehanna district.

Muck Bars.—No demand whatever, nearly everything running on Steel. Holders ask about $24.50, delivered, but there is absolutely no market for the present.

Bars.—The market is extremely dull and manufacturers find it hard work to keep their mills employed even at the present low figures. The general demand is fairly active, but the absence of large orders is a severe drawback, and with mills only partly employed, has developed unprecedently low figures. There is not much prospect for early improvement, so that those who have orders to place find no difficulty in doing it at 1.65¢ @ 1.75¢ for Best Refined Iron, city delivery, or 1.60¢ @ 1.65¢ at interior points.

Skelp.—Fair demand at about 1.60¢, delivered, for Grooved. Buyers talk lower prices, but makers seem to have reached the extreme limit, and must have that figure or cease doing business.

Plates.—In this department the prospect for business is very encouraging. There is plenty in sight, and there may be plenty in hand in course of two or three weeks, but in the meantime makers are each figuring to see how low they can afford to quote and at the same time make sure of getting a share of what business is going. Under these circumstances prices are not exactly weak, but very low. There is a limit beyond which none of the mills will go, and that limit (so they say) is very close to current quotations. In addition to the large orders for the shipyards mentioned in our last, there is another for 8000 tons Light Steel Plates for making riveted water pipe, which, with new orders for bridge and elevated work close at hand, makes it almost certain that Plate mills will have plenty of business, although until the specifications are out there may be a brief period when work will be a little scarce. If the mills could agree upon a general stoppage for a couple of weeks there would be plenty to do all around, and with better prices than are likely to be realized in case each is in a hurry to resume. Meanwhile, however, general quotations for lots delivered are given about as follows:

	Iron.	Steel.
Tank Plates	1.80 @ 1.90¢	1.82½ @ 1.85¢
Shell	2.10	@ 2.20¢
Flange	2.70 @ 2.90¢	2.40 @ 2.50¢
Fire Box	3.00 @ 4.00¢	2.60 @ 2.70¢
Special qualities		3.25 @ 3.75¢

Structural Material.—There is nothing specially new at present, and some of the mills are getting a little slack, although there is nothing to indicate anything like general dullness. Some mills are very busy, and there is certainly a great deal of work being figured on, so that in a few weeks' time everything is likely to be in full blast. Pittsburgh is said to be responsible for the weakness in prices, which is becoming very marked in large orders, although general quotations are said to be as follows, delivered: Beams, Channels or Tees, 2¢ @ 2.20¢, according to size of order; Angles, 1.85¢ @ 1.95¢; Universal Plates, 1.9¢ @ 1.95¢.

Sheets.—The demand shows a decided falling off, but as stocks in first hands are about exhausted, mills will manage to run to full capacity until the usual holiday suspension. Prices are weaker, and on desirable orders liberal concessions have been granted to make sure of the orders. General quotations on small lots of the best makes are about as follows:

Best Refined, Nos. 14 to 20	2.75¢ @ 2.85¢
Best Refined, Nos. 21 to 24	2.90¢ @ 3.00¢
Best Refined, Nos. 25 to 26	3.15¢ @ 3.20¢
Best Refined, No. 27	3.30¢ @ 3.40¢
Best Refined, No. 28	3.40¢ @ 3.50¢

Common, ¼¢ less than the above.

Quotations given as follows are for the best Open-Hearth Steel, ordinary Bessemer being about ¼¢ lower than are here named:

Best Soft Steel, Nos. 14 to 16	2¾¢ @ 2¾¢
Best Soft Steel, Nos. 18 to 20	3¢ @ 3⅛¢
Best Soft Steel, Nos. 21 to 24	3¼¢ @ 3⅜¢
Best Soft Steel, Nos. 25 to 26	3½¢ @ 3⅝¢
Best Soft Steel, Nos. 27 to 28	3¾¢ @ 4¢

Best Bloom Sheets, ¼¢ extra over the above prices.

Best Bloom, Galvanized, discount....70 and 5 %

Old Material.—The market is dull and heavy, although in some quarters there appears to be a little more inquiry. Buyers discriminate very closely, however, and anything that is not exactly what may be required is either passed or marked to still lower figures. General quotations for such lots as are taken seem to be about as follows: Old Iron Rails, $18 @ $19, delivered; Old Street Rails, $19 @ $20; Old Steel Rails, $15 @ $16; No. 1 Railroad Scrap, $16 @ $16.50, Philadelphia, or for deliveries at mills in the interior, $16.50 @ $17.50, according to distance and quality; $8 @ $9 for No. 2 Light; $11 @ $12 for Machinery Scrap; $11 @ $12 for Wrought Turnings; $8 for Cast Borings, and nominally $20 for Old Fish Plates, and $13 @ $14 for Old Car Wheels.

Wrought-Iron Pipe.—There is a very fair demand, and prices are steadier than they have been for a long time past. Discounts as follows, subject to the regular jobbers' commission: Butt, Black, 55 %; Butt, Galvanized, 47½ %; Lap, Black, 65 %; Lap, Galvanized, 55 %; Boiler Tubes, 65 % all sizes new list; Casing, 62½ % new list.

Chicago.

(*By Telegraph.*)

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, December 14, 1892.

The market shows no special change from last week, except that prices seem to be inclined to droop. The approach of the end of the year and the fact that October and November were quite heavy months, are now generally assigned as the reason for the present quietness. It is worthy of remark that many of those who were inclined to be disappointed over the political outlook are beginning to be a little more cheerful. They reason that a number of important contracts are about to be placed which will put the mills in much better shape, and that early in the coming year a great deal more business which is now in sight will be closed. The immediate present thus seems secure. Especial features in this direction are noted under their appropriate headings.

Pig Iron.—While the market is quiet and rumors are in circulation of weakness among sellers, there is no general sagging in prices. Manufacturers are, on the contrary, quite firm, believing that consumers must shortly make their appearance, to provide for their necessities for the first quarter of the coming year. A great deal of business which was transacted in October merely covered the last quarter's consumption, and it appears that there must consequently be a very considerable buying movement in January. A strong effort is being made to force down prices on Southern Iron. It is true that in the case of a very limited number of small companies concessions are offered for immediate purchases. The large companies, however, maintain a very firm attitude and insist that Soft Irons are really scarce. Foundry grades, they think, will take care of themselves as soon as the regular January business sets in. The special weakness in Southern Iron is ascribed in part to selling short by an Eastern house whose representative has recently been through this section. It is asserted that those who purchased may have trouble in getting the Iron they contracted for, as brands are known to have been offered which are exclusively controlled by regular agents. The statement is also made that substitution of lower grades will account for some of the very low prices named by other salesmen. These points are given so that buyers and sellers may judge for themselves how difficult the present situation is to those who are endeavoring to get at the exact facts. Some 4000 tons of Lake Superior Charcoal were sold the past week in St. Louis at about $17.25, delivered. Part of this Iron was sold from this territory, but the greater part is understood to have been sold by Detroit furnaces. Quotations are as follows, cash, f.o.b. Chicago:

Lake Superior Charcoal	$16.50 @ $17.00
Local Coke Foundry, No. 1	13.75 @ 14.25
Local Coke Foundry, No. 2	13.50 @ 14.00
Local Coke Foundry, No. 3	13.25 @ 13.75
Local Scotch	14.25 @ 14.75
Ohio Strong Softeners	16.25 @ 17.00
Southern Coke, No. 1	14.75 @ 15.25
Southern Coke, No. 2	13.60 @ 14.00
Southern Coke, No. 3	13.10 @ 13.25
Southern, No. 1, Soft	13.60 @ 14.00
Southern, No. 2, Soft	13.00 @ 13.25
Southern Gray Forge	12.85 @ 13 10
Southern Mottled	12.50 @ 12.75
Tennessee Charcoal, No. 1	16.50 @ 17.50
Alabama Car Wheel	19.50 @ 20.50
Coke Bessemer	14.50 @ 15.00
Hocking Valley, No. 1	17.00 @ 17.50
Jackson County Silvery	17.00 @ 17.50

Bars.—The market is weaker on large lots of Bar Iron for car work. Some heavy sales have been made here lately, and more business of this character is in sight. Local mills are alleged to have taken the lion's share of this class of trade. The valley mills claim to be still well filled with orders and not competing for the cheapest class of work. They quote on regular specifications 1.62½¢, Chicago, to 1.65¢. Orders carrying high extras are, of course, subject to special rates. Jobbers are now quoting Bar Iron and Soft Bar Steel from stock at the same price—namely, 1.80¢ @ 1.90¢. This is probably the first time that this has occurred here. Soft Steel Bars in mill lots are reported to be quite firm at 1.70¢ @ 1.75¢, Chicago.

Structural Iron.—Among the contracts made public last week was one taken by the Phœnix Bridge Company for the great World's Fair tower. This will require 3000 to 3500 tons of Structural Material to be delivered and erected before April 1 next. A good price is known to have been obtained on this contract. The Metropolitan Elevated contract has not been closed, but will probably be in a day or two. A great deal of work is in sight for the coming year in the direction of large office buildings. The movement was thought to have reached its climax last year, but so many schemes are now coming forward that there is a bright promise of another very active year in the erection of sky scrapers. Quotations are as follows for mill lots, Chicago: Beams, 2.25¢ @ 2.30¢; Angles, 1.90 @ 2¢; Universal Plates, 1.95¢ @ 2.10¢; Sheared Plates, 2¢ @ 2.10. Small lots from stock are selling at 10¢ @ 20¢ ℔ 100 advance on these figures.

Plates.—Competition seems to be keener in this branch than in any other. The Eastern mills are particularly anxious for work, and are making lower quotations than for months. Prices for mill shipment, Chicago delivery, are as follows: Tank Steel, 2¢ @ 2.10¢; Shell Steel, 2.12½¢ @ 2.25¢; Flange Steel, 2 25¢ @ 2.75¢, according to make. Dealers report the boiler trade in excellent shape, causing a steady demand for stock. Orders in this line are coming from all sections, showing a general demand for both new work and repairs. Quotations from stock are as follows: Tank Steel, 2.30¢ @ 2.50¢; Sheet Steel, 2.50¢ @ 2.60¢; Flange Steel, 2.75¢ @ 3¢; Iron Sheets, Nos. 10 to 14 gauge, 2.45¢ @ 2.60¢; Steel Sheets, Nos. 10 to 14 gauge, 2.50¢ @ 2.75¢. Boiler Tubes, 65 % discount.

Sheets.—An unusual demand for December is reported for Black Sheets. Inquiries are large for next year's delivery, and contracts are now being made by heavy consumers. Common Black Sheets, Chicago delivery, continue to be quoted as follows: No. 24, 2.75¢; No. 26, 2.85¢; No. 27, 2.95¢; No. 28, 3.10¢; No. 30, 3.55¢. Soft Steel Sheets are quoted at $1 @ $2 ℔ ton advance on these prices. Galvanized Sheets are in fair demand, but prices are a little weaker. Carload lots are quoted at 70 and 7½ % discount for Juniata, with occasional concessions on good specifications. Jobbers sell small lots at 70 % off. Sheet Copper is in even better demand than last week, due to the closing of the season for roofing and cornice men, who are hurrying up jobs on hand. Extreme discounts have been withdrawn, but we continue to quote small lots at 30 % discount.

Merchant Steel.—A very good trade is in progress from stock. Large consumers are buying in considerable quantities to fill in on their season's requirements, while some jobbers who are now through with their inventory are asking quotations on January shipments. Prices are unchanged, as follows: Open Hearth Machinery and Spring Steel, mill shipment, Chicago delivery, 1.90¢ @ 2.15¢; Tire Steel, 1.85¢ @ 2¢; Ordinary Tool Steel, 6½¢ and upward, according to quality.

Billets and Rods.—Nothing has developed in either Billets or Rods this past week, and probably will not for some time to come, as the Joliet Rod mill has shut down and the Steel works are expected soon to follow suit to make repairs. Quotations continue at $24.75 for Billets and $33 for Wire Rods.

Rails and Track Supplies.—Very little business in Rails is reported for the past week. Nothing as yet has been done toward contracts for next year's requirements by any of the railroads, but it is expected that within the next four or five weeks a movement will be made in that direction. Manufacturers are not ready to make prices for next year, but are inclined to wait until they perceive the probable course of raw material. Nominal quotations are continued at $31 and upward. Iron and Steel Splice Bars are still quoted at 1.75¢ @ 1.80¢; Track Bolts with hexagon nuts, 2.65¢ @ 2.75¢; Spikes, 2.05¢ @ 2.10¢.

Old Rails and Wheels.—A sale of 1000 tons of Old Iron Rails is reported to have been made at a little over $19, Chicago. Dealers are inclined to be skeptical as to this price, and intimate that there was possibly a trade of some kind in-

volved, and that the actual net price could hardly have been to exceed $18.50. This is the rate which by common opinion seems to be about the value of Old Rails here. Old Steel Rails are quoted at $12.75 @ $15, according to length. Old Car Wheels are reported by dealers to be worth $14 @ $14.50, but railroad companies are not prepared to part with their stock at that price, while, on the other hand, consumers do not seem to be anxious to take any.

Scrap.—Negotiations for Wrought between dealers and consumers have so far been fruitless, as the parties are too far apart in their views as to prices. Dealers continue to ask prices hitherto quoted and we continue them as before, subject to the remark that they may vary 50¢ ℔ ton up or down in a market such as now exists: No. 1 Railroad, $16 @ $16.50; No. 1 Forge, $15 @ $15.50; No. 1 Mill, $11; Pipes and Tubes, $10; Horseshoes, $16; Sheet Iron, $6; Cast Borings, $6 25; Wrought Turnings, $9; Axle Turnings, $9.50; Machinery Cast, $11.50 @ $12; Stove Plate, $9; Malleable Cast, $10; Car Axles, $18.50 @ $19; Fish Plates, $17.25; Mixed Steel, gross ton, $11; Coil Steel, $15; Leaf Steel, $16.50, and Tires, $15.

Metals.—Copper is unchanged at 12¾¢ for Lake and 11¾¢ for casting brands in carloads lots. Spelter is in some inquiry for January delivery and is to be had at about 4.20¢, Chicago, in carload tots. Sales of some 200 tons of Pig Lead are reported at 3.52½¢ for quick delivery.

Herbert C. Ayer has been appointed sales agent for the Calumet Iron & Steel Company. Mr. Ayer's office is in the Monadnock Building, corner of Jackson and Dearborn streets. Irving T. Hartz, officially connected with the Calumet Iron & Steel Company for several years, has been retained as secretary. The company's office is continued in the old location in The Rookery.

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fourth and Main Sts., CINCINNATI, December 14, 1892.

The Pig Iron market is in much the same condition as it was a week ago. The volume of business has been rather less than the preceding week, there being no disposition to buy for forward delivery, and only the current consumptive wants have been supplied. These are small individually and are not large in the aggregate. The sellers are much encouraged over the report of stocks in the West, showing, as they do, a material reduction during the month of November, and the leading furnaces in the South have sold all that they can produce for two or three months, but there are other furnaces which are piling up stocks, although not to any such an extent as to undermine confidence. There are still urgent applications for prompt deliveries on contracts, with occasional desires to postpone deliveries until after the turn of the year, and as a whole the market seems to be in a healthful condition, for while it would be difficult to sell any large blocks of Iron, because buyers are not disposed to operate at all during this month, yet there is no such urgency to sell as to make it probable that any material concession could be obtained. Some of the more sanguine furnacemen predict a material advance in prices early in the new year. Quotations are as follows:

Foundry.

Southern Coke, No. 1	$13.75 @	$14.00
Southern Coke, No. 2	12.50 @	12.75
Southern Coke, No. 3	12 00 @	12.25
Ohio Soft Stone Coal, No. 1	16.00 @	16.50
Ohio Soft Stone Coal, No. 2	15.00 @	15.50
Mahoning and Shenango Valley	15.75 @	16.75
Hanging Rock Charcoal, No. 1	19.15 @	19.50
Hanging Rock Charcoal, No. 2	18.60 @	19.00
Tennessee and Alabama Charcoal, No. 1	16.50 @	17.00
Tennessee and Alabama Charcoal, No. 2	15.50 @	16.00

Forge.

Gray Forge	11.50 @	11.75
Mottled Neutral Coke	11.25 @	11.50

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	18.75 @	19.00
Lake Superior Car Wheel and Malleable	17.75 @	18.00

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, December 13, 1892.

Extreme dullness continues to prevail in all departments of the Iron and Steel trades and no improvement is looked for until after the holidays. This is the month in which stock accounts are made up, many plants close down for repairs and active preparations are made for business for the new year. Until all this work has been cleaned up buying will necessarily be largely restricted. Prices on nearly all lines of manufactured goods are extremely low, in some cases lower than ever known before, and makers point this out as a reason for expecting a heavier consumption of material during 1893 than we have ever had before. It is also believed that stocks in the hands of consumers are pretty low and this is given as an additional reason for the belief that the outlook for the future as far as demand is concerned is not discouraging by any means. In regard to prices there is considerable diversity of opinion. Some authorities believe that an improved demand is all that is needed to stimulate prices, while, on the other hand, there are those who venture the opinion that with the present immense capacity for production, and which is constantly being increased, it will be a difficult matter to bring about any decided advance in prices which shall be permanently maintained. Taking the situation as a whole, it can be said that the outlook for the future, as far as demand goes, is encouraging, while as regards prices it is not reassuring.

Pig Iron.—During the week under review a further weakening in Bessemer occurred, and reports are going of several transactions at prices as low as have been touched at any time during this year. Gray Forge, too, is feeling the effects of increased offerings as against a falling off in demand, and as a result the standard price of $12.50, Pittsburgh, is understood to have been shaded more than once during the past week. Thus far buyers have not had much encouragement to enter the market for supplies for next year, believing that there are not conditions existing that point to any advance in prices very soon, while, on the other hand, there are indications that prices may go still lower before the turning point is reached. Between Christmas and New Year's little or no work is done in either foundries or mills, and while a stoppage of only one week seems of very little importance, in reality it means a loss in consumption of many thousands of tons of iron. The report of stocks of Iron on hand December 1, and make for November, which will be printed this week, is awaited with considerable interest by the trade, as showing whether consumption is still in excess of production, or *vice versa*. In sympathy with Finished Material a considerable increase in demand for Bessemer and Gray Forge Iron is expected after the first of the year. As noted below, we have reduced prices slightly on Bessemer, and would state in this connection that reports are going of a sale of 10,000 tons of Bessemer at private terms, but which are said to be lower than have been made for a considerable time past. We quote the market as follows:

Neutral Gray Forge		$12.50, cash.
All-Ore Mill	$12.50 @	12.75, "
No. 1 Foundry	14.00 @	14.10, "
No. 2 Foundry	13.00 @	13.10, "
Charcoal Foundry No. 1	19.00 @	19.50, "
Charcoal Foundry No. 2	19.50 @	20.00, "
Bessemer Iron	13.65 @	13.90, "

While we quote Bessemer as low as $13.65 it is only fair to state that there are some furnaces, both in this city and in the Mahoning Valley, that have not as yet met this price and so far have refused to do so. It should also be stated that the lower price named above has been shaded in at least one instance. We note a sale of 3000 tons of Bessemer at $13.75, Pittsburgh, with deliveries in January and February.

Bessemer Billets.—For the week under review more inquiries were received for Billets than during any one week for some time past. This is due largely to the fact that prices have about reached that point where buyers feel disposed to take a look around with a view of placing orders. Although a good many inquiries were going last week, actual sales do not show much of a gain in amount of material changing hands. As we noted last week, a wire concern in Cleveland was in the market for a large block of Billets, and reports are going that their order has been taken by a Pittsburgh concern for 9000 tons, equal deliveries in January, February and March, at a price equal to $21.60, Pittsburgh. In addition to this sale rumors of a larger block changing hands are going, but particulars have not been given out. Some makers in this district emphatically claim that they have not made the extremely low prices which have been offered on Billets for two or three weeks past. As to the future of the market very little can be said with certainty. At this time makers state that there is considerable business in sight, but buyers have set prices so low at which they are willing to enter the market that further concessions will have to be made either by buyer or seller before any large buying movement will take place. We are advised that the report that the Duquesne mill of the Carnegie Steel Company, Limited, will be closed down for repairs at the first of the year is without foundation. In addition to the above sale of 9000 tons we are advised of several other smaller sales ranging from 500 to to 2000 tons for delivery next year at prices ranging from $22.50 to $23, f.o.b. at makers' works.

Ferromanganese.—The demand is small, and as a consequence a very limited tonnage is moving. We quote the market at $62 for small blocks f.o.b. at makers' mill.

Structural Material.—The conditions governing this department of the trade are much the same as noted last week. A fair tonnage is moving, but it is confined to small lots, and this will doubtless continue to be the case during the next two or three months, or until building operations again commence in the spring. During the shut down at Homestead a good many orders were secured by other concerns at very good prices, but now that Homestead is an active producer, a few of these concerns are placed at a decided disadvantage in order to compete for business. It is said that some very low prices have been made on Structural Material in this market during the last month. We are advised that the following quotations very closely represent prices obtained for small lots: Beams and Channels, 2¢ @ 2.25¢, according to size of order; Angles, 1.75¢ @ 2¢; Universal Mill Plates, 1.75¢ @ 1.85¢; Z Bars, 2¢, and Tees, 2.25¢.

Steel Rails.—We continue to quote these at $30, f.o.b. at mill, for standard sections. During the time Edgar Thomson was on Billets quite a few orders were

received for Rails, which insures steady operation of this plant on Rails for some time to come.

Muck Bars.—There is no department in the Iron or Steel trades in a quieter condition at this time than Muck Bars. The rapid decline in Steel has resulted in a very large falling off in consumption of Muck Bars, and as a result very little material is changing hands. The Carnegie Steel Company, Limited, of this city are not rolling a pound of Iron, and many other concerns are also using Soft Steel almost exclusively. We quote the market at $24.50, but were a good order in sight this price would be shaded very materially.

Steel Plates.—We continue to report quite a large tonnage moving and some few concerns which are in position to turn out product at the lowest possible cost are succeeding in booking much of the new business that is now being offered. One concern in this city within the last two weeks have closed down several departments of their plant, giving as a reason that they had filled all orders on hand, and would remain idle until sufficient business had been secured to warrant resumption. We repeat prices quoted last week, as follows: Bridge Plates, 2¢ @ 2.10¢; Flange, 2.10¢; Fire-Box, 3.50¢; Tank, 1.75¢; Shell, 2¢ @ 2.25¢. The new Plate mill of the Carbon Steel Company in this city, built by the Pittsburgh Iron & Steel Engineering Company, also of this city, was put in operation a short time since and is running in a highly satisfactory manner. It is stated that this plant in point of equipment and labor-saving devices is second to none in this country. Brown & Co., Incorporated, of the Wayne Iron & Steel Works of this city are also making large improvements to their plant, and it is stated will expend $125,000 in betterments before improvements now under way have been completed.

Wire Rods.—The market is in very much the same condition as has been noted for several weeks past. No large orders are in sight, and business moving is given almost exclusively to small lots. No improvement in the demand for Wire Rods can be expected until there has been a considerable increase in demand for Wire and Wire Nails. But very few surplus Rods are made in Pittsburgh, most of those rolled here being used in the manufacture of either Wire or Wire Nails. We quote the market at $31, Pittsburgh, but a large order would, no doubt, shade this price very considerably.

Merchant Steel.—There is nothing of interest to report this week. While the volume of business coming in is not large, mills continue to be fully employed, principally on old orders. Prices are about the same as noted last week, and we quote as follows: Open-Hearth Spring and Machinery at 1.95¢ @ 2.05¢; Tire Steel, 1.85¢ @ 2¢; Toe Calk, 2.25¢, and Sleigh Shoe, Flat Bars, 2¢; Tool Steel we quote from 6¢ upward, according to grade.

Sheets.—While the demand for Black Sheets has fallen off to some extent, considerable old business has not as yet been cleared up, and as a result mills generally are being operated full time. The falling off in demand at this season of the year invariably comes, and this year has been no exception. Prices do not show any material change and we quote No. 24 at 2.60¢; No. 27 at 2.70¢, and No. 28 at 2.80¢, in carload lots with the usual discounts. It is stated that these prices have been slightly shaded in several instances recently.

Skelp Iron.—On account of a large falling off in orders for Pipes and Tubes, the demand for Skelp Iron shows a considerable decline. With the large tonnage now being turned out as against this falling off in demand prices have weakened to some extent, and we now quote Grooved Skelp at 1.57½¢ @ 1.62½¢, and Sheared at 1.77½¢ @ 1.82½¢, with the usual discount off for cash. It is probable that a large order placed at this time would shade these prices to some extent.

Pipes and Tubes.—As noted last week, the demand has fallen off considerably, owing to the fact that pipe laying will be at a standstill for the next three or four months. A fair run of orders, however, is coming in for small lots, which serves to keep the mills employed to some extent, although not to their full capacity. The discount list adopted in Pittsburgh on November 16 is as follows: Black, Butt-Weld, 55 and 10 %; Lap, 65 and 10 %; Galvanized, Butt Weld, 47½ and 10 %; Lap, 55 and 10 %; Boiler Tubes, all sizes, 65 %; Screw and Socket Casing, 62½ %; Inserted Joint Casing, 57½ %. Claims continue to be made that these discounts are being shaded by some makers where good-sized orders are involved.

Merchant Bars.—The remarks made under this heading last week apply equally well this week, as there has been no change whatever in the situation. The demand has not improved, nor is any improvement expected until after the first of the year. The fact that many of the mills will be closed down for periods ranging from a week to ten days or two weeks about the holidays will serve to lighten stocks to some extent and this may have a favorable influence on the market. As a rule mills in this city continue to be fairly well employed, most of the stock being turned out, however, being old orders booked some time ago. We are advised that several concerns are fully booked up for some time and have a good portion of their product sold up for the first two or three months of the year. No. 1 Bars continue to rule at 1.60¢ @ 1.70¢, according to quality, and while this price may be shaded in some cases, where such concessions are made it is generally for Bars of inferior grades. Several firms in this city are booking orders right along for No. 1 Bars on a basis of 1.75¢ at mill, half extras. In the Mahoning Valley mills generally are well employed, although in some instances orders have been pretty well cleaned up, and this will be taken advantage of to make repairs and stock taking. As regards the future, it can be stated that there is considerable business in sight, and in the early part of 1893 it is confidently expected that railroads will be very large users of Iron on account of improvements being made to track equipment in view of the World's Fair. Bars in the Mahoning Valley are firmly held at 1.50¢, half extras, and in some instances we understand that 1.55¢ is obtained.

Wire and Cut Nails.—The market, both as regards Wire and Cut Nails, is in a condition far from satisfactory. The demand for Wire Nails for some time past has only been moderate, while prices are lower perhaps than ever before in the history of the trade. We continue to quote Wire Nails at $1.45, Pittsburgh, on a 35¢ average. It is still stated that this price has been shaded slightly on several large blocks. It is intimated that if a further decline in price occurs several mills will shut down temporarily in preference to selling their output at any lower prices than are now ruling. As regards Cut Nails, there has been no improvement in demand, but, on the contrary, orders are becoming scarcer, with no prospect of improvement in the near future. We quote Cut Nails on a basis of $1.45 on a 30¢ average, f.o.b. factory in Wheeling district.

Barb Wire. — Within the last ten days or two weeks some very large orders have been placed, and one or two concerns have practically disposed of their entire output for the months of January and February. Indications point to other large orders being placed in the near future, and makers state that a slight stiffening up of prices is not improbable. We quote Painted Barb Wire at $2 @ $2.05 in large blocks and $2.10 in smaller quantities. Galvanized Barb Wire we quote at $2.40 @ $2.45 in large blocks, while for small lots $2.50 is obtained.

Scrap Iron and Steel.—The coming shutdown of the mills at the close of the year has had no little influence on the Scrap market, and it is not expected that there will be very much Iron or Steel Scrap sold during the next month. Prices do not show much change, and No. 1 Railroad Wrought Scrap can be fairly quoted at $15 @ $15.25 ℔ gross ton; Cast-Iron Borings, $7.50 @ $8 ℔ gross ton; Wrought-Iron Turnings we quote at $10.50 @ $11 ℔ net ton; Leaf Springs, $21 ℔ gross ton, and Coil Springs at $18 50 @ $19 ℔ gross ton; old Iron Axles we quote at $21 ℔ net ton.

Old Rails.—The market is very quiet and transactions are limited in number and to small amounts. The outlook for any improvement in the near future is discouraging, to say the least, and while a better demand may be experienced in January, it is not expected there will be any material improvement in prices. One or two concerns in this city that were formerly purchasers of Old Steel Rails in long lengths have not bought for a long time, but are using Soft Steel instead. We quote Old Steel Rails in short lengths at $15.50, mixed lengths, $15, and long lengths at $15.25 @ $15.50. Old Iron Rails are held at $21, delivered in Mahoning Valley.

Cleveland.

CLEVELAND, OHIO, December 12, 1892

Iron Ore.—Not much is expected in the way of sales until after the close of the year. A large quantity of Ore remains unsold, many consumers having only partially supplied their wants up to the beginning of next season's shipments. Nothing will be done in the way of sales of new Ore, to be mined in 1893, until the beginning of the year and probably not until the Pig Iron situation becomes a little more tangible and prices somewhat more firmly established. Only a few light transactions are reported for the past week, some non-Bessemers having been taken at about $3.15 ℔ ton and a few Hematites at $4 @ $4.10. These sales are of little consequence, however, compared with the transactions in unsold Ore looked for early in January. Only four shiploads of Ore—7600 tons in all—were unloaded here during the past seven days. Over 35,000 tons of Ore were shipped to the furnaces last week, an increase of 4000 tons over the shipments for the same week in 1892. After the beginning of the year business is expected to pick up a bit, and several hundred thousand tons of Ore will probably be disposed of in January and February.

Pig Iron.—Although the demand may be called moderate the market is quite firm. Despite the increase in the number of stacks in blast, stocks are generally believed to be low and the report for December is awaited with some impatience. Buyers still decline to buy beyond their present requirements, but admit that slight advances after the holidays would not occasion surprise. Forge Irons maintain the firmness noticed for the past two or three weeks, but Bessemers are a bit weaker and the demand is not very determined. In brief, little business is looked

for until the beginning of the new year. Quotations are given out to-day as follows:

Nos. 1 to 6 Lake Superior Charcoal	$17.00
Nos. 1, 2 and 3 Bessemer, per ton.	13.75 @ 14.25
No. 1 Strong Foundry, per ton..	14.50 @ 14.75
No. 2 Strong Foundry, per ton..	13.50 @ 13 75
No. 1 American Scotch, per ton.	14.50 @ 14.75
No. 2 American Scotch, per ton.	13.50 @ 13.75
No. 1 Soft Silvery, per ton.....	14.50 @ 15 00
Mahoning and Shenango Valley Neutral Mill Irons, per ton.	12.50 @ 13.00
Mahoning and Shenango Valley Red Short Mills, per ton.....	13.00 @ 13.25

Scrap.—Dullness still characterizes the market, although an occasional sale of No. 1 Railroad Wrought is reported at about $16. Cast Scrap is quoted at $11.50 @ $12, and Wrought Turnings at $9 @ $9 50.

Old Rails.—The market is only fairly active. We are advised of a sale of Old Americans at $19.75, and quotations are still announced at $19.50 @ $20.25 ℔ ton.

Bar Iron.—Good business is reported and many orders are being placed at 1.60¢ for Common Bar, with deliveries extending well into the year 1893.

Nails.—The Wire Nail market does not improve, quotations at $1.55 @ $1.60 ℔ keg in stock still prevailing. Cut Nails at $1.60 are a trifle firmer.

Barb Wire. — Trade is very light and little business is expected for a month or six weeks, when spring orders will begin coming in.

Louisville.

LOUISVILLE, KY., December 12, 1892.

The demand for future delivery is not as strong, but for prompt shipment consumers are urging Iron forward. On one or two transactions recently some concessions in price were made; same, however, cannot be considered the market, as the sales were not for account of the leading companies, who are unwilling to make any concessions in price. Consumers report a falling off in orders for finished material, though urgency is displayed for deliveries intended for the next 60 days. The largest transaction in Pig Iron was about 2000 tons of No. 2 Soft, deliverable during five months. There were also two other transactions among car companies for the same grade of Iron for delivery during 60 days, and concessions were made on all three. Mill Irons continue firm and furnaces have more orders booked than they can fill for some time. Charcoal Irons continue in light demand. We quote for cash, cars, Louisville:

Southern Coke, No. 1 Foundry...	$13.25 @ $13.50
Southern Coke, No. 2 Foundry...	12.00 @ 12.25
Southern Coke, No. 3 Foundry....	11.50 @ 11.75
Southern Coke, Gray Forge.....	11.25 @ 11.50
Southern Charcoal, No. 1 Foundry.	15.00 @ 16.00
Southern Car Wheel.....	17.50 @ 17.75

Detroit.

WILLIAM F. JARVIS & Co. of Detroit, Mich., under date of December 12, writes: If there has been any change since our last report it is in the direction of less activity. The usual amount of small orders are coming in, but the buyer who wants upward of 100 tons is the exception. Some few sales have been made of low grade Southern Iron for prompt delivery, and a little inquiry for Silveries. Beyond this the Coke Iron business is very dull. Lake Superior Charcoal is the strongest, but buyers are backward about paying the advance recently made. What business has been done has been at full figures, but no large orders have been placed. However, it is not to be expected that the demand will be large so soon after the close of navigation on the lakes. The inquiry is still active for finished material. The car works and shipyards are running full, but some little weakness is shown on account of active competition except where mills can make prompt shipment and of extra quality. With a dull market and no change in prices, we repeat our quotations:

Lake Superior Charcoal, all numbers.....	$17.00 @ $17.50
Lake Superior Coke, Bessemer...	16.00 @ 16.50
Lake Superior Coke, Foundry, all ore.....	16.00 @ 17.00
Standard Ohio Blackband (40 per cent.)..	16.50 @ 17.00
Southern No. 1.....	14.50 @ 15.00
Southern Gray Forge.....	12.50 @ 13.00
Jackson County (Ohio) Silvery.	17.75 @ 18.25

St. Louis.

(By Telegraph.)

Pig Lead.—The market is extremely quiet, and in the absence of sales price is nominally 3.50¢. Trade is not expected to improve until after the turn of the year.

Spelter.—A lower London market has caused a weaker tone in prices here. Sales are limited at 4.10¢; consumption fails to show any improvement whatever, while steady production keeps increasing the stocks of metal on hand.

New York.

Office of *The Iron Age*, 96-102 Reade street, NEW YORK, December 14, 1892.

Pig Iron.—The selling movement is light, although agents note that there is some inquiry for delivery next year. The leading Southern companies are still firm in their views. We quote Northern brands at $15 @ $15.50 for No. 1; $14 @ $14.50 for No. 2; $13 @ $13.50 for Gray Forge, tidewater. Southern Iron, same delivery, $14.75 @ $15 for No. 1; $13.75 @ $14 for No. 2 and No. 1 Soft; $13.25 @ $13.50 for No. 2 Soft; $12.75 @ $13 for Gray Forge.

Ferromanganese.—There are occasional small sales of foreign Ferro for prompt delivery, but on the whole the movement is small. We quote $60 @ $60.50 for 80 % Ferro.

Billets and Rods.—Negotiations are pending for a round lot of Wire Billets, but otherwise the market is quiet. Nothing has been done as yet concerning a lot of 2000 tons of foreign Wire Rods for the Pacific Coast. Even the low prices of foreign Billets are no inducement to buyers for the re-export Wire trade, in view of the current quotations of domestic Billets to inland mills. We quote Steel Billets, tidewater, $24 50 @ $25; foreign, $29.50 @ $30; Wire Rods, $33.25 @ $33.50; foreign Wire Rods, $40 @ $40.50, and Swedish Rods, $54.50 @ $56.

Steel Rails.—The Eastern mills do not report any new orders of magnitude. Bethlehem has started again on some work, probably for a local road. The Edgar Thomson is running on a number of small orders of 1200 to 1800 tons each, for quick delivery, among the buying roads being the Wabash and the Michigan Central. It is quite evident that the methods of buying Rails have undergone a change aside from any influences which the present situation may have. In former years the railroads habitually placed their orders in one lump in advance for delivery over a long period. Now they split them up into small lots, which they have rolled when they require them. Only those lines on which Rail mills are located, or who haul a heavy tonnage of raw materials for the mills, give them winter work. It has happened in past years that the works went into a new year with upward of 1,000,000 tons on their order books, which allowed of pretty steady running. Now we are approaching the close of the year and yet, so far as can be learned, there is not a single mill in the country with work enough on hand now to keep running full time in January. We do not mean to state that they will not get the work, but it is true that two weeks in advance the orders are not yet placed. The tendency seems to be to crowd the manufacture into those months in the year when active laying and repairing can be done. Such alternate periods of rushing employment and comparative idleness are not conducive to economical work, particularly for those plants which depend upon taking metal direct from the blast furnace.

Manufactured Iron and Steel.—Word comes from Germany that the four principal warring Beam mills have again entered into a "syndicate," establishing 95 marks as the base price f.o.b. Burbach. The mills are Rothe Erde, at Aix-La-Chapelle, Burbach, Roechling and Stumm in the Saar district. The figure named is an advance of about 12 marks ℔ ton. It may be questioned whether the formation of this new combination materially alters the position so far as competition in our seaboard markets is concerned, since the Germans have a trick of making exceptionally low export sales when they are most harmonious in exacting remunerative prices from the home trade. At the prices quoted, by mail, by Belgian merchants, Steel Beams can be laid down here at 2.1¢ ℔ lb. duty paid. Locally there is very little new business coming up for the immediate future. One large contract will be closed in a day or two, and figuring is going on on a very large structure on Broadway which will take about 3000 tons of material. Decision on bids entered recently for a new bank building has been postponed till the end of the month. The new Harlem bridge has not been let yet, according to the latest advices. Generally speaking the Structural Iron trade is very dull and only small local orders have been placed. Prices show a weakening tendency on Beams, Angles and Plates, and some very vigorous drumming is being done even by the largest concerns, so that the lowest prices are being named even to very small buyers. The majority of mills, while they are still quite busy cleaning up their orders, have comparatively little work booked for the near future. On a modest order for plates for a ferryboat to be built in a Hudson River yard very close figures were made. Bars are dull and weaker. We quote Beams at 2.35¢ @ 2.75¢ for small lots and 2.10¢ @ 2.25¢ for round lots, according to sizes; Angles, 1.85¢ @ 2¢; Sheared Plates, 1.85¢ @ 2.10¢; Tees, 2.20¢ @ 2.75¢; Channels, 2.20¢ @ 2.50¢, on dock. Car Truck Channels, 2¢ @ 2.10¢. Steel Plates are 1.85¢ @ 2¢ for Tank; 2.20¢ @ 2.25¢ for Shell; 2.50¢ @ 2.65¢ for Flange; 2.6¢ @ 2.75¢ for Marine, and 2.70¢ @ 2.80¢ for Fire Box, on dock. Refined Bars are 1.67½¢ @ 1.9¢, on dock; Common, 1.55¢ @ 1.60¢. Scrap Axles are quotable at 1.90¢ @ 2.10¢, delivered. Steel Axles, 1.90¢ @ 2.1¢, and Links and Pins, 2¢ @ 2.20¢; Steel Hoops, 1.90¢ @ 2¢, delivered.

Track Material.—We quote Spikes, 1.90¢ @ 2¢; Fish Plates, 1.60¢ @ 1.65¢; Track Bolts, square nuts, 2.40¢ @ 2.60¢, and hexagon nuts, 2.70¢ @ 2.80¢, delivered.

A. T. Shoemaker, Railway Supplies and Equipment, has removed his office from 146 Broadway to the Boreel Building, 115 Broadway.

Metal Market.

Copper.—A number of small parcels of Lake Superior Ingot have been secured at 12¼¢ on the spot and moderate sales for near future delivery at about 12⅜¢ were also reported. Outside of those routine transactions nothing has transpired except a rumor to the effect that one company has recently taken orders involving about 500,000 lb at or about 12.30¢. The demand at present is hesitant, but the statement comes from a well-informed dealer that only a few of the large consumers have provided for their near future requirements, and that a lively demand must necessarily spring up soon after the turn of the year, since consumption for electrical and other purposes promises to be unusually heavy. Hence most producers offer very indifferently and limit their price at 12½¢. Casting brands are held with corresponding firmness at 11½¢ and on Arizona Pig 10⅞¢ @ 10½¢ remain as the popular quotations. While the outlook for future consumption may be all that is claimed for it, the plain fact remains that the restriction of output is a potent factor in sustaining values at the present time. Thus far the output of the world is about 5000 tons below estimated minimum capacity, and, with that much metal below instead of above the surface, it is obvious that the burden of carrying is relieved to no small extent.

Pig Tin.—The movement of prices has been very irregular, and the market is puzzling to about every person connected with it in any prominent degree. At intervals surface appearances indicate that the leading operators have supplies well under control and manipulate prices to suit their interests. Quite as frequently do the maneuverings here and in London tend to strengthen the opinion that the relation of supply and demand is such that the leading traders are influenced more by force of circumstances than by anything else. Whatever the facts in this connection, it is plain that prices in the New York market respond more quickly to any downward movement in London than to fluctuations in the other direction. During the week under review 250 tons or more have been turned in a speculative way, with December delivery starting at 19.60¢, moving up to 20¢ and dropping back to 19.60¢ within 48 hours. Sales to local and out of town trade were effected at corresponding rates, including deliveries this month and the first quarter of next year.

Pig Lead.—Sales in this market aggregate at least 600 tons, all of which is understood to have been taken by consumers at 3¾¢ for prompt and near future delivery. The demand at present is rather slow, yet sales have been more easily made during the past week than they were in the preceding one, and some indications of a better tone to the market have come to the surface. With one or two exceptions, spot stocks in dealers' hands are found to be unusually light, and Western reports are to the effect that shipments are running closely to the output. How the large consumers stand is problematical, but the fact that some are bidding 3¾¢ is looked upon as suggestive in this connection.

Spelter. — Western brands are still quoted at 4⅛¢ @ 4.40¢ in round lots, for prompt and near future delivery in the East. Few transactions pass in this quarter, but Western galvanizers seem to be taking enough to at least partially relieve the burden of heavy production and the market shows fairly steady tone in consequence. Special brands and small lots bring about the usual advance on the prices above quoted.

Antimony.—Outside of ordinary jobbing movement there has been very little doing and prices remain almost stationary. Current quotations are 10¾¢ for Hallett's, 10⅞¢ @ 11¢ for LX, 11¢ @ 11¼¢ for Crown and 11¼¢ for Cookson's in round lots.

Tin Plate.—Very fair sales of Cokes for future delivery have been made at prices a shade under those generally quoted for ordinary spot parcels. Ternes on the spot have been moved to some extent at variable figures, but in other lines the business continues to be chiefly of hand-to-mouth character. The assortment of Bright Charcoals and Terne Plates is somewhat fuller, and prices for several varieties are slightly easier in consequence. We quote spot prices as follows: Coke Tins — Penlan grade, IC, 14 x 20, scarce; J. B. grade, do., scarce; Bessemer full weight, $5.50; light weights, $5.15 for 100 lb, $5.05 for 95-lb, $4.90 for 90 lb. Siemens Steel scarce. Stamping Plates—Bessemer Steel, Coke finish, IC basis, $5.60 @ $5.65; Siemens Steel, IC basis, $5.75; IX basis, $6.80 @ $6.85. IC Charcoals—Melyn grade, ½ X assortment, $6.40; Crosses, $8; Allaway grade, any assortment, $5.70; Crosses, $7; Grange grade, any assortment, $5.80; Crosses, $7.15. Charcoal Ternes—Worcester, 14 x 20, $5.70; do., 20 x 28, $11.35; M. F., 14 x 20, $7.75; do., 20 x 28, $15.50; Dean, 14 x 20, $5.40; do., 20 x 28, scarce; D. R. D. grade, 14 x 20, $5.30; do., 20 x 28, $10.50; Alyn, 14 x 20, $5.37½; do., 20 x 28, $10.60; Dyffryn, 14 x 20, $5.65; do., 20 x 28, scarce. Wasters—S. T. P. grade, 14 x 20, $5.10; do., 20 x 28, $9.90; Abercarne grade, 14 x 20, $5; do., 20 x 28, $9.80.

Financial.

The most favorable symptom in business circles is the steadiness of all the markets, money, merchandise and stocks included, under a variety of disturbing influences, such as the silver discussion, the unseasonable outflow of gold, a shrinkage of foreign trade, exceptionally low prices for agricultural products and prospective tariff changes. The inference is unavoidable that with caution there is confidence. Touching the Brussels conference, the latest advices are that Chancellor Caprivi in the Reichstag declares that Germany will adhere to the gold standard, and Mr. Goschen of England having just made a visit to the Emperor the two governments represented may be assumed to be in accord on the silver question, thus preparing the way for more intelligent action by Congress. Another factor in the general situation is the withdrawal by some of the foreign steamship lines of cheap rates for ocean travel, including special rates for the Columbian Exhibition, perhaps to retaliate for America's restrictions of immigration. After a temporary cessation gold exports are renewed on a liberal scale, $2,750,000 having been shipped for Thursday's steamer, besides $475,000 in silver. Of the total $1,000,000 went to Austria, where a handsome premium is paid. In London gold is likewise at a premium above bank rates. Senator Wolcott of Colorado says that the indications point to nothing in the shape of legislation during this session favorable to the free coinage of silver. The provisional freight agreement adopted by the trans-Missouri lines will go into effect January 1. The compact provides that on eastbound freight the rates shall in all cases be the same as those on westbound shipments of the same articles. The general business of the country continues to be large, but not as large as it has been. The aggregate clearings of the banks were 79 % more last week than for the same period last year.

Stocks were irregular and generally stronger, the chief feature being a well-sustained advance in Western Union, which stimulated a rise in the whole list. A report that there had been good buying of this stock for account of parties who were seeking to effect a change in the management in the interest of a prominent banking house, started a further rise in this property on Saturday. On Monday the market opened with a boom for Western Union on a report that the buying of the stock last week was largely for investment by parties who had assurances that new methods of management would soon be introduced. There was also a rise in Manhattan, and the improvement in these properties stimulated an advance in the other Gould specialties, while stocks of Texas roads rose on the estimate of a yield of 2,000,000 bales of cotton in that State. The tendency of the whole market was upward until news came of the engagement of gold for export. The grangers were depressed in connection with the less favorable Government report on the condition of the Iowa corn crop. Later Whiskey again advanced, followed by Sugar, Manhattan, Colorado Coal and Cotton Oil. The more important net advances were in Western Union, 8¾ %; Manhattan, 5¼; National Cordage, 3½; Missouri Pacific, 2⅞; Reading, 2. On Tuesday George J. Gould was elected to the presidency of the Manhattan Elevated. The Cordage Trust took measures to increase its capital $10,000,000.

United States bonds were quoted as follows:

U. S. 4½s, 1891, extended	100
U. S. 4s, 1907, registered	113¼
U. S. 4s, 1907, coupon	114¼
U. S. currency 6s	107½

The weekly bank statement shows a decrease of $983,950 in surplus reserve. Loans contracted $2,067,500. Specie decreased $1,385,200, and legal tenders decreased $552,500. Money was easy. Call loans upon stock collateral were made at rates averaging about 4½ %. The banks and trust companies quoted 5 % as a minimum rate. Time loans were in fair demand only, while the supply of money has been liberal. Quotations for good mixed collateral are 4 @ 4½ % for 30 to 60 days; 5 % for 90 days to 4 months, and 5½ % for longer periods. Commercial paper is in fair demand, and the city inquiry is increasing as bank deposits grow larger. The supply is still only moderate. A Boston paper says that in prospect of the failure of the Brussels Conference, the apprehension on the part of the bankers seems to increase rather than decrease. The cashier of one of the largest banks says all of the banks in Boston are filled with silver notes and they are continually trying to get rid of them. A bank seldom buys any paper but what it stipulates that it be allowed to give silver notes.

Silver bullion certificates sold at 83½. Bar silver in London, 38⅛d.

The foreign exchange market was firm owing to the small supply of bills, particularly of cotton acceptances from the South. Posted rates $4.86½ @ $4.89.

The all rail eastbound shipments of dead freight from Chicago last week were 77,000 tons, against 82,000 tons the previous week and 99,000 tons the corresponding week of last year.

Breadstuffs are as dull as ever, in the face of free offerings from the Northwest and a steady increase in visible supplies, the quantity in sight being more than 100,000,000 bushels. The Government crop report of Saturday, though a trifle better than that of last year, is not so good as had been expected. The shipments of wheat since July have been about 95,000,000 bushels, or only about 24,000,000 bushels less than the corresponding period last year. The condition of fall-sown wheat December 1 was 87.4 per cent., against 85.3 last year and 98.4 two years ago. Cotton at the close is improved. Mr. Shepperson, the well-known local

statistician, has made an estimate at 6,500,000 bales maximum, and suggests the possibility of a considerably smaller amount. His figures cover the commercial crop and include 179,000 bales old cotton. Pork products are high, on account of meager supplies. Spot coffee steady. Sugar quite active. In manufactured cottons there was increased inquiry, under the impression that the drop in cotton might result in some advantage to buyers, but values seem rather to harden than to weaken.

Possible changes in the tariff do not seem to have reduced the incoming foreign trade during the month of November. The imports of merchandise at this port for the month have been $6,509,086 in excess of the corresponding month of last year, but we received less than $1,000,000 of specie, against over $6,000,000 in November, 1891. Last year the specie imports were about $31,500,000, as compared with only $11,000,000 this year. Exports during November fell off $3,000,000 compared with the corresponding total last year. Taking both items together, the November comparison for two years is not flattering, but including the increased exports earlier in 1892, the net result to date shows no great differences.

Coal Market.

The Anthracite trade is quiet, with only a fair demand, but not weak. All kinds are in good supply, except Pea and Buckwheat, which are scarce, and wholesale operators say they are likely to be more so, as a result of restriction, the steam sizes being used to such an extent in running machinery at the mines and not being produced in former proportions. Combine Broken is weak, the demand being small, so that prices average 25¢ @ 40¢ ℔ ton under their own circular. Pea is $2.60 @ $2.80 alongside; the best grades $2.85. Buckwheat is $2.25 @ $2.50, alongside. Lehigh Pea is about 10¢ cheaper than above named. Cumberland Coal is $3.25 @ $3.50; Clearfield, $3 @ $3.25; and Beach Creek, $2.90 alongside.

All of the Philadelphia & Reading Coal and Iron Company's collieries in the Mahoning, St. Nicholas, Girardville and Shenandoah districts suspended shipments two days last week on account of an over stocked market.

A vein of Coal measuring 11 feet has been found on Spring Mountain, a short distance below Beaver Meadow. The tract belongs to E. B. Coxe, Henry Dryfoos and another.

Another great misfortune has befallen the Pictou Coal field in Nova Scotia. It is announced that the Drummond Mine is on fire, but it is thought that it can be saved. This is the mine at which the great explosion occurred 15 years ago, when 70 lives were lost.

The Greatest Steel Record.—During the month of November the Duquesne Steel Works of Duquesne, Pa., under the general management of Thos. Morrison and the management of the converting mill under Thos. McDonald, broke all previous records and by doing so surpassed all other steel mills of the same size in the world by making 26,713 tons of ingots. The tonnage of the two turns was made as follows, for the month: No. 1 Turn, Chas. McDonald, foreman, made 1898 blows, 13,539 tons; No. 2 Turn, Levi Upton, foreman, made 1859 blows, 13,173 tons. The largest week's work is 889 blows, 6349 tons, and the largest 24 hours' run is 157 blows, 1128 tons. When the size of mill is taken into consideration this enormous product looks to be an impossibility.

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, December 14, 1892.

The situation in the Iron trade is without radical change. Somewhat more cheerful reports come from the Cleveland district, owing to numerous inquiries for Iron for forward delivery, but in other quarters there has been no appreciable turn for the better. In prices of warrants there has been very little movement. Late dealings were at 41/8 for Scotch, 37/3 for Cleveland and 48/ for Hematite. Latest reports show 72 Scotch furnaces blowing, 343,000 tons Scotch and 17,000 tons Cleveland Pig in the public stores.

Pig Tin was depressed early in the week by free selling on the part of some importers and "bear" operators, but recovered on more favorable American advices, and subsequently weakened for want of support and lack of outside interest.

The Copper market has been quiet, and prices have weakened owing to unrest due to the Silver question and indifference manifested by consumers. Better American buying toned the market for a time, and good inquiry for furnace material also served to help the market.

The Tin-Plate market has been very quiet, and orders coming in are chiefly for small lots. Prices have remained almost stationary. Stocks at shipping ports have increased to 142,000 boxes.

Scotch Pig Iron.—Former prices prevail, and, while quiet, the market is fairly firm.

No. 1 Coltness,	f.o.b.	Glasgow	55/
No. 1 Summerlee,	"	"	53/6
No. 1 Gartsherrie,	"	"	52/
No. 1 Langloan,	"	"	53/
No. 1 Carnbroe,	"	"	44/
No. 1 Shotts	"	at Leith	53/
No. 1 Glengarnock,	"	Ardrossan	49/6
No. 1 Dalmellington,	"	"	50/
No. 1 Eglinton,	"	"	46/6

Steamer freights, Glasgow to New York, 1/; Liverpool to New York, 7/6.

Cleveland Pig.—Business is slow and prices for makers' Iron is affected but little by the improvement in warrants. There are sellers at 37/, f.o.b. shipping port, for No. 3 Middlesborough.

Bessemer Pig.—There is no change in the character or volume of business, and prices are nominal at 47/6 @ 48/ for West Coast brands, Nos. 1, 2 and 3, f.o.b. shipping port.

Ferromanganese.—A fairly active business and prices quite steady. English 80 % quoted at £11. 11/3, f.o.b. shipping port.

Steel Rails.—Business is moderate and the market easy. Heavy sections quoted at £4, f.o.b. shipping port.

Steel Billets.—Very quiet market, and no change in prices has been made. Bessemer, 2½ x 2½ inches, quoted at £4, f.o.b. shipping point.

Steel Blooms.—There is little doing, and prices remain as before. Makers quote £4 for 7 x 7, f.o.b. shipping point.

Steel Slabs.—The market dull and prices nominal. Bessemer quoted at £4, f.o.b. at shipping point.

Old Iron Rails.—Business slow and prices without change. Tees quoted at £2. 10/ @ £2. 12/6 and Double Heads at £2. 15/, f.o.b.

Scrap Iron.—Moderate sales making at former prices. Heavy Wrought Iron quoted at £2. 2/6 @ £2. 5/, f.o.b.

Crop Ends.—Market very quiet and prices without change. Bessemer quoted at £2. 10/ @ £2. 12/6, f.o.b.

Manufactured Iron.—There has been no change in character of business, and prices are still soft. We quote, f.o.b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Ordinary Marked Bars	8	5	0	@	8	10	0
" Common "	6	7	6	@	6	10	0
Staff. Bl'k Sheet, singles				@	7	10	0
Welsh Bars (f.o.b. Wales)	5	7	6	@	5	10	0

Tin Plate.—Market is fairly steady at the close, but quiet. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade	13/6	@ 13 9
IC Bessemer Steel, Coke finish	12/3	@
IC Siemens " " "	12/6	@
IC Coke, B. V. grade 14 x 20	12/0	@
Charcoal Terne, Dean grade	11/9	@ 12/

Pig Tin.—The market closes easy and slow. Straits sold at £91. 15/ @ £92 for spot and £91. 7/6 for three months' futures.

Copper.—Prices soft at the close on free selling. Merchant Bars quoted at £46 17/6 @ £47 spot and £47. 5/ @ £47. 7/6 three months' futures. Best selected, £52. 10/.

Lead. — Market has been quiet and prices are rather weak at £9. 15/ for Soft Spanish.

Spelter.—Demand moderate and the market weak at £18. 2/6 for ordinary Silesian.

Sheet Iron Manufacturers.

(*By Telegraph.*)

PITTSBURGH, Pa., December 14, 1892.

The regular monthly meeting of the Iron and Steel Sheet Manufacturers' Association of the United States was held in the *Times* Building, Pittsburgh, on Tuesday, the 13th inst. J. G. Battelle of the Piqua Rolling Mill Company, Piqua, Ohio, was chairman, and John Jarrett secretary. Eighteen firms were represented, and considerable business, of a routine character principally, was transacted. Reports made by members present indicate that the demand for sheets had fallen off to some extent, but the decreased demand was not of a more pronounced character than usually takes place at this season of the year, with prices fairly satisfactory, and prospects for trade for next year were regarded as exceedingly bright.

As we go to press we learn of the death on Tuesday, December 13, in the 72d year of her age, of Catharine Chatillon, mother of John P. and George H. Chatillon, and widow of John Chatillon, who died about 20 years ago. Relatives and friends are invited to attend the funeral from her late residence, 149 East Sixtieth street, at 10 a.m. on Friday, December 16, and at St. Ann's Church, East Twelfth street, near Fourth avenue, where a solemn mass of requiem will be offered. John P. Chatillon with his sister is at present in Europe.

Cleveland city officials have under consideration the erection of a music hall from plans from the Van Dorn Iron Works Company, the structure to be of iron, covered with thin steel and lined with asbestos.

HARDWARE.

Condition of Trade.

THE TRAVELING REPRESENTATIVES of most manufacturing and jobbing houses are now at home, and this fact, together with the usual diminution of business at this season, tends to make the volume of trade light. There is, however, at least the usual number of small orders covering seasonable or holiday goods and other articles on which retailers' stocks have run low. There is also a good deal of business quietly transacted, as the large jobbing houses are on some lines covering their wants for the next few months. Taken all in all, the condition of business is very satisfactory, the indications pointing to an excellent trade during the coming season. In the matter of price the market is devoid of special feature, the condition not being materially different from that which has prevailed for some time. Low prices are still the order, but the trade are not apprehending much further decline. Collections are good, and the financial situation on the whole is quite satisfactory. The special features of business at present, and more or less of the character of the trade of the year, are referred to in the special reports given below.

Chicago.

(*By Telegraph.*)

The Shelf Hardware Trade is reported to be very good for the season, but orders now coming in are largely of a pick-up character. Retailers are not laying in stocks, but simply sorting up and buying only what they really need. Trade of this character is particularly troublesome and causes an appearance of bustle and activity which is not borne out by the sales book footings. The steady stream of such orders, however, is taken as an indication that stocks are low and that the spring demand will, therefore, be usually heavy. The last half of December is expected to be quiet, as some houses have already begun inventory, and traveling men will soon be coming in for the holidays. House-Furnishing Goods and Tinware are particularly active for the seasen. Sheet Copper continues to stiffen, and jobbers say that an advance in their quotations cannot long be deferred from present indications.

St. Louis.

(*By Telegraph.*)

The demand for Hardware continues in good volume, and the last month of the year gives every promise of being an active one. In the way of holiday goods business is very active, and Sleds, Ammunition and Firearms are classed in the list of active specialties. The Northwestern trade is very large, especially in Nebraska and the Dakotas. Copper goods continue to be held at slightly higher figures. Barb Wire and Wire Nails are dull and prices are somewhat weaker. It is expected the prices will advance after January 1, however, as indications point to an exceedingly heavy trade after that time. Collections are satisfactory.

Cleveland.

THE W. BINGHAM COMPANY.—We have as yet had nothing approaching winter weather, and it is beginning to have its effect upon trade in general; but upon some lines—notably Shelf and Builders' Hardware—business is somewhat stimulated. Orders now contain the articles that go to make up the Hardwareman's holiday trade, which we notice each year is becoming more extended, particularly in the larger towns and cities, so taken as a whole it makes trade rather satisfactory. The demand on Wire and Wire Nails continues good, but prices are very weak. What effect the consolidation of a few of the large Wire Mills, which has recently taken place, will have is hard to foretell. Formerly, one would look for a stiffening in prices, but of late things have been going so altogether opposite to all precedent that we will forbear from a prediction. Collections are rather slow at present, possibly owing to the very bad condition of country roads.

Baltimore.

CARLIN & FULTON.—As is usually the case, the first two weeks of this month are accompanied by an active demand from our near trade for goods adapted to the holiday season, while from the more remote sections not much business is expected until the beginning of the year.

After a succession of winters of which the temperature interferes greatly with the sale of Skates and Sleigh Bells, we have already had cold weather enough to justify the belief of the recurrence of one of the old-fashioned winters, and acting upon that belief the demand for Skates has been astonishing. The craving on the part of the public for novelties keeps the inventive faculty of the manufacturer always at work to produce something new, either in the article itself or in the style in which it can be offered, and it is wonderful to observe the extent to which this demand exists and the readiness with which it is responded to. This æsthetic taste of the consumer is not to be despised, for the appreciation of the beautiful, as shown in the demand for Tacks in kegs and miniature pails, for Ammunition packed in boxes on which the artist has shown his skill, for Rivets in cartoons, for Mechanics' Tools in cunningly devised cases, means more profit to the dealer than is to be procured from the prosaic contemplation of a keg of Shoes of a coil of Barb Wire.

Judging from the continued slow deliveries by the railroad companies, a great volume of freight must still be moving, for we see no improvement in the time required for the shipment from any section of country. With this state of affairs existing now, we may wonder what service will be rendered by the railroad companies during the World's Fair, when all freight traffic will be subordinated to the demands of the traveling public, and that demand for the greatest speed possible.

Our salesmen generally write that little trade may now be expected for the balance of the year, and, as inventories are generally taken and the results of the year for better or worse ascertained, we will not be surprised at dull sales for the next two weeks.

Omaha.

LEE-CLARKE-ANDREESEN HARDWARE COMPANY.—The jobbing Hardware trade of this section of the country still continues to enjoy an excellent business, and this the closing month of the year will undoubtedly show a gratifying volume of transactions. Taking the past year as a whole, the general result has been entirely satisfactory. Not only has the total volume of business been largely in excess of any previous year, but the element of demoralization in prices has been to a great extent eliminated, so that at the annual "round up" shortly to occur, the balance on the preferred side of the ledger is assured. We are inclined to the opinion of a reasonably satisfactory balance, too. The outlook for the coming year seems equally promising, and although some doubts are expressed of its continuance, based on the assumption of probable adverse legislation that may be advanced by the party to come into power, still the sentiment is generally entertained that as the country is in a prosperous and flourishing condition, it would not be a wise policy for the ascendant political party to attempt to inaugurate changes of any kind that would naturally be in the nature of experiments.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—Trade continues good, without any interruption as to volume.

At the present time we cannot see any desire of the trade to curtail their stock, even though the first of the year is so nearly at hand, thus indicating a healthy condition throughout the country.

Season goods have been in active demand, and so far as Skates are concerned, it has been impossible to supply the requirements.

Usually at this season of the year our salesmen expect a falling off in trade, and

look for a closing up of the year's business, but at the present time it is likely to continue until the last days preceding Christmas holidays.

Preparations are being made for taking inventory, which usually begins with the wholesale houses not later than December 19. Collections continue fair.

Portland, Ore.

FOSTER & ROBERTSON.—The past month in the matter of sales hold well up to any previous November. The complaint of slow collections, and in many instances of none at all, still holds good. There has not been the immigration during the past 18 months that we had previous to that time to bring money into the Northwest. The low prices that produce brings, and short crops in many sections, combine to make money very close. The prospect for 1893 is that money will work closer than during the past year. The weather so far has been favorable to preparing ground for the next crop. We have as yet had no cold weather, not even a heavy frost. The only change to report in prices is an advance of ¼ cent a pound for both Sisal and Manila Rope.

New Orleans.

A. BALDWIN & Co.—Business in this section is proving much more satisfactory than it has been for the past four or five months. Orders are beginning to come in pretty freely. The demand seems to be principally for seasonable goods. Collections are showing a marked improvement, and the turning point has been reached in the demoralization that has existed in this section of the country for the past five or six months.

Louisville.

W. B. BELKNAP & Co.—There is a fair movement of goods, not only for the holiday trade which may be expected, but also of staple articles; certainly as heavy as could be well expected at this season of the year, which is proverbially dull in such lines. We always look for a slight depression of values along the latter part of November and early in December. This year it amounts to a little more than a feeling, for prices are so near bed rock that there is nothing to give away.

Bar Iron is exceptionally solid. It is from $1 to $2 a ton above the low water mark. If there are no concessions made now we hardly expect many in January, when a more active demand always sets in.

The country at large is prosperous, and locally the high prices obtainable for hogs and tobacco promise solvency of the country buyer for some time to come.

There are a good many small failures throughout the Southern country, largely the result of poor crops in certain sections for two years. The notice of an assignment is a poor sort of Christmas gift, but it is hardly any more acceptable when it comes in the shape of a "Happy New Year," as is its wont. It looks as though we might be clearing the decks for better action in 1893.

The demand for money is very strong for the country banks to move the crops and full rates are obtainable.

If they could settle the silver question satisfactorily in Brussels, and if our Legislature in Frankfort would adjourn indefinitely, we could be reasonably happy, despite the constant drain upon our sympathies by that unhappy class of large producers who are "selling goods below the cost of manufacture."

Notes on Prices.

Cut Nails.—The demand for Cut Nails is moderate, but with the disposition on the part of the manufacturers to curtail production, there is not a serious accumulation of stock. Prices are substantially as at our last report, a fair quotation being $1 40 to $1 45 for carload lots on a 35-cent average, figures which have, however, been shaded slightly. Prices in New York City are $1.75 to $1.85 for small lots from store and $1.60 to $1.75, according to average, for carload lots on dock. The mills are anticipating a good demand in the spring and express the hope that higher prices will rule.

Chicago by Telegraph.—Inquiries are better for Steel Cut Nails than they have been for the last two weeks, but the market can hardly be called active. It is but a shadow of its former self. There are now but two to three Cut Nail concerns selling in this territory. Quotations are still $1.60 to $1.62½, Chicago, on 30-cent average. Small lots are held at $1.65 to $1.70 from stock.

Wire Nails.—The Wire Nail market is not in a satisfactory condition and low prices have been developed. For carload lots, f.o.b. mill, $1.45 is a fair quotation, some manufacturers, however, being unwilling to meet it. Notwithstanding the lateness of the season there is a good demand for the Nails, some large orders having been placed in addition to a good many small ones from the retail and small jobbing trade The quotation from store in New York is about $1.80.

Chicago, by Telegraph.—The past few days have developed a better condition of trade in Wire Nails, and manufacturers are feeling more cheerful. They hardly expect in December and January to market their output, but it looks as though they would not be obliged this season to crowd their warehouses. Merchants are buying considerable quantities for delivery in January and February, and some would like to cover March also, but that is further ahead than makers care to sell. A fair quotation for factory lots is $1.60, Chicago. Small lots from stock are selling at $1.70 to $1.75.

Barb Wire.—During the past week the Barb Wire market failed to show any improvement in tone. On the other hand, lower prices have been developed, there being a good deal of competition among the different manufacturers. The market is represented by the quotation of $2.40 for Four-Point Galvanized at mill. Painted is quoted 45 cents less, but by far the largest part of the trade is in Galvanized, the Painted Wire being in comparatively little request. The regular quotation for small lots from store in New York is $3.10 for Four-Point Galvanized.

Chicago, by Telegraph.—Barb Wire manufacturers report good buying movement now in progress, which they regard as the forerunner of greater activity. The market is now controlled by a very few manufacturers and the failure of the Enterprise Company withdraws a large tonnage capacity which was for a long time regarded as unfavorable to the maintenance of prices. Painted is still offered from factory at $2.10 and Galvanized at $2.50, but an advance of 5 cents per 100 is predicted by the makers very shortly if the demand keeps up. They look forward to the coming spring trade with the confident belief that it will be heavier than that of any previous season. If this view proves correct, Barb Wire will be scarce and much dearer. Jobbers quote small lots at $2.30 for Painted and $2.70 for Galvanized.

Rivets.—The Rivet market continues in an unsatisfactory condition and prices are low and irregular. Competition is active, and the outlook for an early recovery in prices is not regarded as promising.

Rope.—During the past week a further decline is to be noted, the price of Manila and Sisal Rope having fallen off ¼ cent. New Zealand remains, however, unchanged. The market is represented by the following net prices, which are subject only to the discount of 1½ per cent. for cash in ten days, terms, f.o.b. New York or factory:

Manila.

	Per pound.
7-16 inch diameter and larger	$0.10¼
⅜ inch	.10¾
½ and 5-16 inch	.11¼
Tarred Rope	.09¾
Hay Rope	.10¼

Sisal.

	Per pound.
7-16 inch and larger	$0.07¾
⅜ inch	.08¼
½ and 5-16 inch	.08¾
Hay Rope	.07¾
Tarred Rope	.07¼
Medium Lath Yarn	.07¼

New Zealand.

	Per pound.
7-16 inch and larger	$0.06½
⅜ inch	.07
½ and 5-16 inch	.07½
Hay Rope	.06½
Tarred Rope	.06

On very large lots a concession of from ¼ to ½ cent per pound can be obtained from above prices, f.o.b. factory or New York.

American Screw Company.—A revised discount sheet bearing date December 8 has been issued by the American Screw Company, Providence, R. I., referring to their new catalogue, which was noticed in our last issue. The quotations named are for the most part the same as in their former discount sheet, changes being made in Rivets, Burrs and Coach Screws, which are quoted at the figures named below:

Norway Rivets.	
Ordinary, in bulk	60&10
Coopers, "	60&10
Thousand, "	60&10
Thousand, in Papers	60&10
Block and Carriage, in Papers of 100	60&10
Hame	60&10
Belt, with Burrs	60&10
Burrs, for Rivets	60&10
Coach Screws	80

Floor Hinge.—The Floor Hinge made by E. C. Stearns & Co., Syracuse, N. Y., a description of which was given in a recent issue, is listed at $5 per set, subject to a discount of 25 and 10 per cent.

Pocket Cutlery.—Humason & Beckley Mfg. Company, New Britain, Conn., and 80 Chambers street, New York, issue under date December 1, a revised list of Pocket Cutlery. It represents many new patterns which have lately been added to their assortment.

Glass.—The Glass market remains unchanged in prices and general condition. City trade remains quiet in Window Glass, while out of town business is reported as fair. This is true of both domestic and imported Glass. Prices remain unchanged in both lines, the importers reaffirming prices at their last meeting. Reports from factories making American Glass indicate that the demand is good and that a large number of factories are in operation. According to a statement made by a Pittsburgh paper devoted to the Glass interests there are 1655 pots in operation, 410 pots out of operation and 248 pots in course of erection. It is reported that the partial failure of gas in Ohio towns is causing much inconvenience to the Glass factories using natural gas for fuel, and that on this account some of the factories have shut down, while others are moving to other places. Prices on Glass are quoted as follows: American Window Glass, 1000-box lots or more, 80 and 15 per cent. discount; carloads, 80 and 10 per cent. discount; less than carloads, 80 and 5 per cent. discount. French Window Glass, 75 and 10 and 5 per cent. discount. American Plate ranges in price from 50 and 10 and 7½ per cent. discount to 60 and 2½ per cent. discount. Imported Plate Glass, 60 per cent. discount to 60 and 10 and 5 per cent. discount.

The Cut Nail Card.

THE INTRODUCTION of the practice of selling Cut Nails at prices varying with the average above base has been a fruitful source of annoyance to the trade. It was not contemplated at the time of the adoption or the card, but came in vogue as a result of the increased competition among manufacturers, and was an expedient adopted for the purpose of influencing immediate orders. It was an ingenious scheme, evolved by the fertile brain of a most enterprising salesman, and although it was looked upon as a temporary plan to catch current orders it secured too strong a hold to be abandoned, and for several years has been a recognized principle in Cut Nail transactions. Manufacturers and jobbers, however, have been restive under the sundry annoyances resulting from this method of ordering, and now the Southern Hardware Jobbers' Association have taken the initiative in a movement to sweep it out of existence and restore the old order of things. Following is a copy of a circular letter on this subject addressed to Cut Nail manufacturers, which has been sent out on behalf of the association by W. P. Smith, secretary:

We desire on behalf, and at the earnest solicitation of, the members of our association, to ask your co-operation and influence in the adoption of a Nail Card which will do away with the practice of buying and selling Nails upon a basis of high average. When this practice was first introduced we thought it was short lived, and consequently gave it very little concern; but as it has shown more than ordinary vitality, and as the evils and disadvantages to the jobbers are manifesting themselves more clearly each day we are now anxious for a change.

1. You will admit that the jobber is your best customer, and as such is entitled to as low a price as you can sell to any one. It often happens that a small retailer in a country town is enabled, by reason of high average, to purchase a carload of Nails for a price from 10 to 15 cents per keg lower than the jobber can purchase 1000 kegs. He gets his Nails home and finds that he has more than his trade requires and unloads on the country merchant near him at about cost. The result is that the price of Nails is always demoralized, and the jobber who carries the stock is forced to sell without profit.

2. A jobber contracts at a certain average above base, usually 30 cents, and in order to make his average when he specifies, he is often forced either to leave out a requisite number of large sizes, which he needs to complete his stock, or overbuy on casing, finishing and three-penny fine.

3. As it is the same to the manufacturer in the end, we can see no reason for perpetuating the present card, particularly when the manufacturers all know the relative cost of the different sizes of Nails, and can frame a card accordingly.

The Nail manufacturers and jobbers whom we have been able thus far to interview upon this question are heartily in sympathy with the views expressed in the circular. Jobbers handling large quantities of Cut Nails say that they have much difficulty in making up orders which will average more than 25 cents above the base price. A house has an exceptional trade from special classes of large consumers that is able to make a specification carrying an average of 45 to 50 cents above base. Yet, if it is so situated, it has great advantages over competitors for the general run of business, according to the present method of selling Nails.

The Nail Card now in force is peculiarly well adapted to this system of doing business. It imposes absurdly high extras on casing, finishing and small Nails. These extras form the basis of the calculations on averages. If a new card should be adopted with the extras scaled down to a fair correspondence with the cost of manufacturing base sizes, the prop supporting the system of averaging would be taken away. The Lakeside Nail Company of Chicago have taken up the suggestion of the Southern Hardware Jobbers' Association and have gone to work vigorously to secure the co-operation of their fellow manufacturers in the desired reform. The argument is made that a new card should be agreed upon by the trade which would be so equitably framed that a jobber could order just the sizes needed for his stock, avoiding any complication of averages. This would, of course, not be a panacea for low prices, and would not cause any more Nails to be consumed. Prices are regulated by the condition of trade generally and not by tabulated lists of extras in a Nail Card. But the business of buying and selling Cut Nails would be greatly simplified and thus be a more agreeable matter for all concerned. The Wire Nail manufacturers are credited with having very generally resisted the introduction of the system of averaging into their branch of trade. With the experience of the Cut Nail manufacturers before them it is to be hoped that they will continue to resist it.

Export Notes.

W. R. GRACE & CO., 1 and 2 Hanover square, New York, announce the organization of the Merchants' line of steamers, to maintain a regular service between New York and the West Coast of South America, via the Straits of Magellan, with departures at intervals of 40 days, calls to be made at all the leading ports in Chile and Peru as far north as Callao, inclusive. Among them may be mentioned as regular ports of call, Talcahuano, Valparaiso, Coquimbo, Iquique, Arica and Callao, with such others as the requirements of commerce may warrant. The line, we are told, will maintain first-class modern steamers, the service to be inaugurated by the steamer "Coya," 2607 tons register, leaving New York about January 1, 1893. The time to Valparaiso they expect to accomplish in about 37 days.

Thomas A. Eddy of the Coombs, Crosby & Eddy Company has just been made Uruguayan Consul for the Port of New York, with office at 78 South street. He has just returned from a seven months' trip to Uruguay and Argentina on business for his company.

It is announced that C. P. Huntington, President of the Southern Pacific and Mexican International Companies, has decided to extend the Mexican International system to Monterey, and engineers are now in the field locating the contemplated line from Espinoso to Monterey. It is believed the road will ultimately be extended to Tampico.

The severe drought which has prevailed in the vicinity of San Luis Potosi, Mexico, for the last four years has caused all of the natural water courses to become dry, and the water used for domestic purposes is polluted and impure, resulting in an epidemic of typhoid fever. Drastic measures are now being taken to stamp it out and prevent further spread of the contagion.

Statistics gathered indicate the Mexican coffee crop will approximate $8,000,000 in value, and the assertion is made that agricultural exports will be larger than ever during the coming year, thus minimizing the difficulties occasioned by the decline in silver.

Late mail advices from Bogota say the Colombian government has granted to the Carthagena-Magdalena Railroad Company a cash subsidy of $650,000 in gold, the grant

having been approved by President Nunez at Carthagena. This is the road referred to in a former issue, now in course of construction, extending from Carthagena on the Caribbean coast to a point on the Magdalena river near Calamar. It is an American corporation, with headquarters in Boston, financed by men interested in the Atchison, Topeka & Santa Fé system. The concessions granted by the Colombian government for this road also include 400,000 acres of land and exclusive privileges of the magnificent harbor at Carthagena.

Merchants of Barranquilla (at the mouth of the Magdalena river, Colombia), have asked the postal officials at New York to route their mail via Curacoa, pointing out that letters, &c., sent by Red "D" steamers to Curacoa and transferred to steamers for Colombian ports arrive at destination five to fifteen days sooner than when sent to Colon direct, or by the Atlas line, calling at several ports before reaching Colombia. Mail matter per Red "D" line transferred at Curacoa often reaches Barranquilla in eight or nine days from New York; letters by the Atlas line are rarely delivered under 21 days, while those by Pacific mail to Colon for Carthagena and Barranquilla are sometimes four weeks en route.

The estimate of the coffee crop from the interior of Colombia places it fully up to the average, and the harvesting of it has already begun.

The State Department at Washington is advised by the United States Consul at Callao that the Peruvian Government has advanced the duties on imports 8 per cent. for everything subject to duty, barring tobacco, cigars and cigarettes, on which an advance of 50 per cent. has been made.

Gilbert U. Heinekey, for many years the representative of the Coombs, Crosby & Eddy Company abroad, having traveled extensively for them in Europe, West Indies and South Africa, is about leaving for London, England, where he will represent their interests and those of several other American houses in connection with British and Continental trade. His acquaintance with foreign and colonial merchants he hopes to utilize in introducing American specialties, and would consider an offer from a few additional manufacturers. While not permanently located yet, any communications addressed to him at 34 Great Tower street, London, E. C., England, will reach him.

Goodell & Harding, Burlington, Vt., manufacturers, have recently shipped a lot of their Portable Box Banders to Victoria, B. C., and report a growing demand from all parts of this country.

A bill has just been introduced in the Mexican Chamber of Deputies authorizing President Diaz during the next five years to make contracts and grant privileges and concessions to those introducing new industries into the country. Notwithstanding the fears and fluctuations regarding silver, exchange is considerably below the figures reached not long ago, 60 day paper being obtainable at 48 per cent. premium, and sight at 50. The maize crop in Sinalda and Zenora is a partial failure.

Luis A. Meyer of Struller, Meyer & Schumacher, export commission merchants at 40 Stone street, New York, doing business with the West Indies, recently made a quick trip to Havana, on both business and pleasure, leaving New York November 9, and getting back here two weeks later. He reports an excellent business, abundant evidence of which he brought with him in the shape of orders. He says there is still some friction on the part of customs authorities over the interpretation of the recent reciprocal treaty.

The affair between Venezuela and this country growing out of the dispute concerning the Red "D" line steamer "Philadelphia" has been amicably settled by the United States Minister at Caracas, assisted by Mr. Boulton, agent of the line. A commission has just been appointed in connection with the disputed boundary between Venezuela and England.

Flint & Co., export commission merchants, have just moved into their new quarters in the handsome red stone ten-story Morris Building, 64, 66 and 68 Broad street corner Beaver, now nearly completed, occupying together with the Export Lumber Company and New York Commercial Company (corporations connected with Flint & Co.) about three-quarters of the third and fourth floors. This building will be a landmark of considerable historical interest, commemorating, as it does, the "gallant and patriotic effort of Marinus Willett (subsequently Sheriff and Mayor of New York, and President of the Electoral College) in here seizing June 6, 1775, from British forces the muskets with which he armed his troops."

John G. Rollins, export merchant, 15–25 Whitehall street, New York (established in London 1866), having severed his connection with John G. Rollins & Co., Limited, London, issues a card announcing that he is now prepared to quote prices direct from makers on all American products, delivered free in London, Liverpool, Glasgow, Leith, Bristol, Hull or Newcastle. Manufacturers in the United States desirous of coming in contact with buyers in Great Britain and Australia will receive attention by corresponding with Mr. Rollins.

A cable was received in this city recently by a prominent export commission house having large interests in Australia, asking what were the prospects in America for free silver. The adoption of such a policy is referred to by some as likely to be of great benefit to the colonies as large producers of that article.

—THE—

Hardware Club.

The membership of the Hardware Club is steadily growing, accessions being constantly received from representative business men, so that the project may be regarded as an assured success. At a meeting of the governors held last Tuesday, the following gentlemen who had made application for membership were elected:

EDWARD F. ANDERSON,
Geo. F. Bassett & Co., New York.

H. W. ATWATER,
74 Franklin street, New York.

JOHN A. BALESTIER,
The Hamilton Disston Investment Co., New York.

JOSEPH Z. BATTEN,
Sweetser, Pembrook & Co., New York.

J. EDWARD COWLES,
Thurber-Whyland Company. New York.

HARRY C. DISSTON,
Henry Disston & Sons, Philadelphia.

SAMUEL DISSTON,
Henry Disston & Sons, Philadelphia.

W. W. DIXON,
Phœnix Glass Company, New York.

WILLIAM F. DORFLINGER,
36 Murray street, New York.

GEO. F. EBERHARD,
San Francisco, Cal.

HENRY ELLIOTT,
118 and 120 Duane street, New York.

CHAS. GERICOT,
78 and 80 Murray street, New York.

H. L. KENNEDY,
Bradford, Kennedy & Sons, Syracuse, N. Y.

HEZEKIAH KING,
106 Chambers street, New York.

WILLIAM J. MCKENNEY,
59 Leonard street, New York.

JAMES MCMAHON,
President Emigrant Industrial Savings Bank, New York.

WILLIAM F. MILLER,
Wyckoff, Seamans & Benedict, New York.

JOHN L. MURRAY,
Chas. Millar & Son, Utica, N. Y.

THEODORE W. MYERS,
Comptroller, New York.

JESSE C. PIERREZ,
Columbia Rubber Company, New York.

WILLIAM W. REYNOLDS,
Hartley & Graham, New York.

ABIATHAR RICHARDS,
59 and 61 Reade street, New York.

GEORGE H. CHATILLON of John Chatillon & Sons reports a very satisfactory volume of business for the year about to close, it having exceeded considerably that of the preceding year, notwithstanding the partial destruction of their plant by fire last December, and consequent impairment of manufacturing facilities during the process of rebuilding.

Hardware in New Zealand.

LETTER FROM

POLHEMUS LYON.

Our Special Foreign Representative.

AUCKLAND, NEW ZEALAND, November 12, 1892.

There is nothing more discouraging than a visiting salesman's experience in Australia—no question that, if self-respectful, he will receive very pleasant courtesies from the merchants whom he calls upon, but when it comes to business, oh, my! First comes the trouble about a visit to the sample room, the interogatory, of course, being, "How long will you stay?" Well, I don't know what the sage of Toledo advises, but the usual traveler believes himself absolved from all guilt in avoiding a truthful answer. A buyer said to me within a few days, "Our mail leaves a week from Saturday and I can hardly see you until after that." So it is that in a city one-third the size of Chicago a salesman is kept many times as long for much less than one-third the business accomplished.

After yielding to pressure and really visiting the sample room, the buyer may be greatly interested and make copious notes during several hours of hard work, dropping incidentally the remark that he will order some of this or that; we follow it up a few days later with some marked catalogues, which gives us another peck at him, and as mail day approaches call in to see if an order is going forward; the buyer will tell us yes or no, as the case may be, but very often declines *in toto* to give any further record of the order. One has to trust that the heavy expense he has been to, the wear and tear and time he has given them, the advantages which they may obtain through his visit, will yield abundant fruit, but little evidence does the salesman get of his success—it cannot but sap one's energy.

Then again only a very few houses send an American order every month. The majority send but six or eight a year, for the colonial buyer prefers to wait until he can make up a liberal general indent, not being willing to give an American order for $400 or $500 or such a matter, and a salesman cannot but fear that the eloquence with which he proved the advantages of his wares may have less potency when chilled by 60 days shelving. Yet what are we to do? A large proportion of the European manufacturers whose goods are on the colonial merchants' shelves are personally represented in Australia, and though it is almost impossible to trace results, this without question is proven to be the way to increase materially our shipments. What is worth doing is worth doing well, and well worth looking after.

Though a very few of the older houses look with disfavor upon a manufacturer's visit because some travelers have not been discreet in limiting the concerns they called upon, still the majority of the large importers welcome such visits and take a decided interest in posting up from such visits and take a decided interest in posting up from samples shown; but it does not do to tell of sales of any items in "The States," for be you ever so modest and truthful, your tale will be thought a "Yankee yarn" and doubted. Though the Australians handle a great many goods, they do buy surprisingly small quantities of almost any line, while some of them have pretty large ideas of their value to the American manufacturer. This was illustrated by a Melbourne buyer, who asked me if the chief output of American axes was not to the Australian market! It would not have done to tell him that one house in St. Louis buy as much per annum as all Australia put together. So if a traveler wishes to keep a record for truthfulness, it is well not to refer to the demand in our land for any particular line.

I know quite a number of Australian merchants who are coming over to the World's Fair, and they all count on the trip proving a profitable investment, as they will learn what new American lines they can handle to advantage.

POLHEMUS LYON.

Iowa State Traveling Men's Association.

THE ANNUAL BUSINESS MEETING of the Iowa State Traveling Men's Association was held in the Grand Opera House, Des Moines, December 3. From reports made at that time the following interesting facts were brought out: The association, for the first time in its 12 years of existence, had been called upon to pay a death loss, and the aggregate claims paid for benefits during the past year, not including the $10,000 paid for the two death losses in 1892, amounted to almost twice as much as the entire sum paid for benefits during the entire 11 years previous. The membership of the association at the present time is 8500, of which 3453 were added during the past year, showing a wonderful growth brought about by the untiring zeal of the members. There are now 248 applications on file in the secretary's office, which the incoming Board of Directors will act upon. Although there was $55,017.43 handled by the treasurer during the year, the Auditing Committee announced that there is not even a cent shortage. President Mitchell was re-elected for the ensuing year and E. C. Evans was elected vice-president. A number of the members who had purchased tickets for the banquet, which was held the evening previous, were informed that the business men and manufacturers of Des Moines had paid for the supper and the music and the dance, and presented the same to the association; and all those who had paid would have their money refunded. At the close of the meeting J. M. Christy, the retiring vice-president, was presented with a gold-headed cane and opera glasses by the members of the association from all States except Iowa.

The Pike Mfg. Company's Catalogue.

THE PIKE MFG. COMPANY, Pike Station, N. H., have issued a catalogue for 1892-93, covering their entire line of Scythe, Axe and Oil Stones, Razor Hones, Table Hones, Emery Stones and Hindostan Hackers, Gold Testing Stones, Oil Stone Holders, Grindstones, Soapstone goods and Dental Wheels. Full page illustrations are shown of Pike Station, N. H., grinding room at Pike Station, mill room at Evansville, Vt., mill at Pike Station and Indian Pond Quarry. Excellent effects have been produced in some of the illustrations of Stones with a dark back ground, which brings out forcibly the fine texture or grain of the goods. A page is devoted to illustrations of Dental Wheels, of which over 20 different styles are shown. These goods are new, all mounted on mandrels to fit Dental Engines, for finishing and polishing surfaces. The book is of a fine quality of paper and liberally illustrated. The manufacturers give the following information in regard to Washita Oil Stones:

Washita Stone is found in the spurs of the Ozark Mountains of Arkansas, near the Hot Springs, and is known throughout the world as the best Oil Stone for sharpening edge tools. It was first put upon the market about 50 years ago and was named "Ouachita" (since corrupted to Washita) from the fact that it was taken down the Ouachita River (in Arkansas) to New Orleans. From thence it was shipped to England, where it soon made an excellent reputation, proving superior to the Turkey Stone or the Water-of-Ayr, which up to that time had been the Oil Stones mostly used for sharpening Mechanics' Tools. From that time to this the demand for Washita has steadily and rapidly increased, until to-day it is sold in all civilized countries and known as the principal Oil Stone of the world.

Washita Stone is composed of nearly pure silica. Its sharpening qualities are due to the small, sharp-pointed grains or crystals, which are hexagonal in shape and harder than steel, hence will cut away and sharpen steel tools.

Washita Stones are termed Oil Stones because oil must be used to float off the particles of steel cut from the tools and thus prevent them from filling up the minute pores of the stone.

There are various grades of Washita rock, from perfect crystallized and porous whetstone grit to vitreous flint and hard sandstone. The sharpness of the grit of any Washita Stone depends entirely upon the character of its crystallization. The best Whetstones are very porous and uniform in texture, composed entirely of silica crystals. The poor grades are less porous, making them vitreous or "glassy;" or they may have hard spots or sand holes, or contain grains of sand among the crystals. Some Stones, while presenting a good appearance, contain a little aluminum, which enters the cavities as the stone wears away, leaving a glassy surface and rendering the Stone nearly worthless.

We have spent many years and much money in prospecting for this best deposit, and believe we are now justified in saying that we have the product of all the quarries producing good rock. We have associated with us all of the best quarrymen, as well as many of the oldest and most experienced manufacturers, and shall spare neither pains nor expense in our endeavor to put upon the market only the best quality of this Stone.

The catalogue refers to the Arkansas Oil Stone as the best sharpening stone known for engravers, surgeons, dentists and others who use very fine edge tools. Soft Arkansas Stone, it is remarked, is a grade between the regular Arkansas and the Washita Stone. It is not quite so fine grained and hard as the regular Arkansas, but it cuts faster and is better for some kinds of mechanical work.

A Convenient Wire Nail List.

THE SALEM WIRE NAIL COMPANY, with factories at Salem and Findlay, Ohio, and Eastern office and warehouse at 54 Warren street, New York, have issued a new price-list of wire Nails, which is conveniently arranged and gives a good deal of information which will be appreciated by the trade. It is in the form of a folder, the cuts of the different kinds of Nails being given together on one page. To illustrate the arrangement of the list and show the information given in it we make from it the following extract :

Size.	Standard Gauge and Length.	Approx. No. in 1 pound.	Advance Price over Base.
COMMON NAILS.			
2d Common	1 inch, No. 15½	900	$1.60
3d "	1¼ " 14½	615	1.20
4d "	1½ " 13	322	.90
5d "	1¾ " 12½	254	.90
6d "	2 " 12	200	.75
7d "	2¼ " 11½	154	.75
8d "	2½ " 10½	106	.60
9d "	2¾ " 10	85	.60
10d "	3 " 9½	74	.50
12d "	3¼ " 9	57	.45
16d "	3½ " 8	46	.45
20d "	4 " 6	29	.35
30d "	4½ " 5	23	.25
40d "	5 " 4	17	.25
50d "	5½ " 3	13½	.10
60d "	6 " 2	10½	Base..... ....

Trade Items.

JOHN P. CHATILLON of John Chatillon & Sons, who sailed November 17 on the "Fuerst Bismarck," arrived at Gibraltar November 25 and Naples three days later. He will spend the winter and spring in the Mediterranean in pursuit of health and recreation.

IN THE 1893 CATALOGUE issued by the Piqua Handle & Mfg. Company, Piqua, Ohio, are shown a new line of goods, embracing Wood Door Knobs, Closet and Shutter Knobs, Electric Push Buttons, &c. They formerly supplied the wood turnings for these to manufacturers. Within the past year, however, they have been making the goods complete and supply them to the Hardware trade. Cooper's Hoop Drivers, Bung Starters and Soldering Copper Handles are also new goods with them.

THE WASHINGTON COUNTY COURT HOUSE, Greenville, Miss., now nearing completion, has been provided with iron stairs, made from original designs by E. T. Barnum, Detroit, Mich. They are referred to as being artistic and ornamental, and as carrying with them the idea of the superiority of metal over wood for this purpose.

THE ECLIPSE BICYCLE COMPANY, whose removal of their plant at Indianapolis, Ind., to Beaver Falls, Pa., noted in these columns some time since, have their machinery all erected and will begin operations within a short time.

MR. SMITH, of the Smith-Klahr Hardware Company of Philadelphia, reports an unusually good trade in season specialties, such as Skates, Cutlery, &c., and a fair average demand in other departments. The fact is also noted that buyers are exceedingly conservative, taking only such quantities and such goods as are likely to be turned over almost immediately. Inducements in the way of extra credits have little or no influence, which is considered to be an excellent feature, and one that promises well for future transactions. The volume of business during the year has been fair, and while the outlook is not discouraging, everybody seems inclined to follow a conservative policy.

S. W. KENT, Meriden, Conn., manufacturer of the well-known Blizzard Horse Ice Creeper, issues several pamphlets referring to his specialty and announces that he has prepared a large stock from which to fill orders promptly. In his advertisement in another column, through an error of the types, the word Blizzard has appeared as Lizzard, which mistake has been rectified. Any one who knows of Mr. Kent's energetic business methods will understand why he should object to anything so slow as a lizzard.

THE VARIETIES of Electric Hand-Lighting Gas Burners manufactured by the Electric Gas Lighting Company, 195 Devonshire street, Boston, and Lakeside Building, Chicago, are designed to cover all requirements in this direction. A still further improvement in this line is embodied in their By-Pass Ratchet Burner, No. 3½, as shown in their advertisement in this issue. This Burner is intended to take the place of their old styles Nos. 7 and 11,

THE KILMER MFG. COMPANY, Newburg, N. Y., have brought suit in the Circuit Court of the United States for the Northern District of New York, through Bacon & Van Steenbergh of New York City, their solicitors, against Griswold Bros. of Troy for infringement of their Griping Adjustable Bale Tie patents. The suit is for $100,000 damages, an accounting of profits and an injunction both preliminary and final to stop the manufacture of the goods.

ANNOUNCEMENT IS MADE December 9 that the partnership heretofore existing between John C. Hardy and George M. Matteson, under the style of Hardy & Co., purchasing agents of miscellaneous Hardware, 47 Warren street, New York, has been dissolved by mutual consent. The business will be continued at the same address by Mr. Matteson, who will receive all debts and pay all demands relating to the partnership.

VAN WAGONER & WILLIAMS COMPANY, in an advertisement on the last page of this issue, announce that they are the successors of the Trenton Vise & Tool Works. This business was formerly at Trenton, N. J., but has been removed to the new plant of the Van Wagoner & Williams Company at Cleveland, Ohio. The company have largely increased facilities for the production of Vises of all kinds as well as Hammers, Sledges, &c., and refer to their production as of a superior quality. They advise us that they have made many improvements in the manufacture of Solid Box Vises, and assure us that their present production surpasses in quality anything ever before put on the market. They invite correspondence as to prices.

THE PHILADELPHIA DROP FORGE COMPANY, American and York streets, Philadelphia, Pa., have largely increased their steam plant and have made additions to the machinery department, thus increasing their facilities. The Whitten-Godding Cycle Company of Providence, R. I., are now agents for these forgings, and will have an exhibit at the Philadelphia Cycle Exhibition to be held in Philadelphia, January 4 to 14, 1893. The Philadelphia Drop Forge Company are now compiling a new catalogue which will be issued about January 1, and will mail the same upon application.

THE LIQUID FISH GLUE FACTORY of A. W. Dodd & Co., Gloucester, Mass., was entirely destroyed by fire on the morning of the 7th inst.

HEMACITE MFG. COMPANY, Trenton, N. J., have added to their plant a brass foundry and plating department, and in addition to their regular line of goods are making all kinds of Sanitary Fittings.

THE BRITANNIA DEPARTMENT of the Southington Cutlery Company, Southington, Conn., has been organized into a separate corporation. The stock in the new concern will be mainly, if not entirely, held by the stockholders of the Southington Cutlery Company.

PROVIDENTIAL TILE WORKS, Trenton, N. J., are enlarging their works, having recently put in a new boiler and are now erecting a new 12-foot kiln. They are also getting out many new designs in Tiles for the coming season.

SWANN, WHITEHEAD & CLARK, Trenton, N. J., have made extensive additions to their works, among which is the purchase of the entire plant of the Union Pottery Company, and have placed a large force of hands at work remodeling it into a complete plant for the manufacture of all kinds of Metal Work. They are now making a full line of Brass Sanitary Couplings.

THE STATEMENT in our last issue that the advertisement of Covert's Saddlery Works, Farmer, N. Y., was a *fac simile* of their colored hanger was erroneous. The Hanger, from its large size and brilliant coloring, could not, of course, be reproduced in *fac simile* in the advertisement. The matter common to both was a prominent mention of their Triumph Snap.

I. H. AMOS, formerly with Lockwood Taylor Co. of Cleveland, Ohio, and for the past six years intimately identified with the wholesale Hardware house of Foster & Robertson, Portland, Oregon, will sever his connection with the latter firm January 1, and will open an office in Portland as manufacturers' agent. The fact that Mr. Amos is extensively and favorably known in the Pacific Northwest will be greatly to his advantage in his new venture. His many friends throughout the East will wish him abundant success, and many manufacturers will, doubtless, avail themselves of his services. His announcement in regard to this matter will be found among the Special Notices in this issue.

PULLMAN SASH BALANCE COMPANY, Rochester, N. Y., advise us that they have recently received a letter from Levi Green, Perth, West Australia, in which was enclosed an English draft for £61 for 800

of their new Automatic Spring Sash Balances. Mr. Green takes the occasion to remark that architects who have seen the Balances have commented very favorably on their excellence. The company also advise us that they are in receipt of orders from London and Belgium.

AN EFFORT is being made by the Diamond Clamp & Flask Works, Richmond, Ind., to introduce their specialties to the Hardware trade as pattern shop supplies. The line includes Brass Dowel Pins, Rapping Plates and Fillet, &c. These goods, they remark, have been made by hand by pattern makers; they now take them up, manufacture them by special machinery and make a specialty of them. The goods are put up in boxes and in rolls, making them as easily handled as Shelf Hardware. The company supply dealers with a nickel plated diamond shaped sign containing samples of all their goods.

DANIEL IRVIN & SON, Bellefonte, Pa., have purchased the stock and fixtures of the Hardware store formerly conducted by the late Robert McFarlane, and will continue the business in the same store room.

T. S. STEWART, Springfield, Mass., announces that after nearly two years' retirement from the Hardware business in Springfield, where he has been located for about 20 years, he has decided to re enter the business, and is about to locate in Orange, Mass., where he has leased a store. Mr. Stewart expects to open up about December 17 with an entirely new stock of goods and is desirous of receiving from manufacturers catalogues and price-lists with discount sheets and most favorable terms to cash customers.

BAKER GUN & FORGING COMPANY, Batavia, N. Y., advise us that this has been one of the busiest years they have ever had, their output being the largest in their experience.

P. FORG, manufacturer of Cabinet and Builders' Hardware, Somerville, Mass., has just commenced work in his new building, where his facilities for turning out goods have been improved.

Protection to Merchants.

THE QUESTION as to the character of the protection the dealer has a right to expect from the manufacturer whose goods he handles is one which is often coming up. The trade have frequently reason to complain that after placing orders with manufacturers their customers are canvassed by the manufacturers and the sale of goods seriously interfered with. It is to be regretted that there are indications of a disposition on the part of manufacturers to visit consumers and in cases where they would probably be well looked after by the local trade. Many of our readers are familiar with the annoyance and loss thus occasioned. Precisely what is to be expected in this regard is a question about which there would be some difference of opinion, and it is obvious that it would depend upon the special circumstances in each case.

This matter has been suggested by the letter printed below, which is from a well-known house in a Western city:

We would like to have your opinion in a matter of controversy now going on between a manufacturer in Cincinnati and ourselves. We are about 60 miles from that city and are carrying their goods on our shelves. They furnish us printed matter with which we can canvass the trade here and in surrounding towns. They recently quoted a shop in a town 11 miles from us, and we objected to it, claiming that they ought to refer the parties to us. In their reply they say, "We aim to protect the jobber in every way whenever we quote prices or sell to the smaller trade." We claim that this is in no sense a protection to the jobber and they disagree with us.

In submitting this question to our readers we would state that the discount quoted to the shop was 67½ per cent. and the discount at which the goods were purchased by the house, 70 per cent. We shall be glad to have an expression of opinion from manufacturers or merchants as to whether under these circumstances the protection given the dealer was sufficient.

Travelers' Experiences.

THE COMMUNICATION which we published in our last issue in regard to traveling salesmen and the treatment sometimes accorded them has called out the following interesting letter relating to the subject:

In your issue of December 1 you have an article "The Traveling Salesman," and judging from his remarks I take him to be one of those much-abused beings. There are certainly two sides to every question or argument and just so with this, but he takes only his side and gives the "Old Harry" to the shopkeeper. I have been one of the fraternity and served 11 years with grip and price list soliciting business through town and country and found that they "who sat at home" were not so bad as they were painted. Some allowance should be made where a storekeeper is daily solicited for business by men who are not competent to describe the goods they carry, and are so persistent that only by repulsing them can the merchant return to the letter he is writing or the estimate he is figuring on.

Without trying to show how "smart" I am I will relate a little incident which occurred to me in a large New York town. I called on a merchant who had the reputation of being particularly bearish, and when I entered his office he was engaged writing. I waited until he looked up, and, presenting my card, remarked, "I represent that house and would like to show you my samples, but as you are busy I will look in again this afternoon." He took the card and answered, "I don't care a —— whether you come again or not," tore up my card and threw the pieces on the floor. A hot flush mounted through me until it rose to my face, but, as your correspondent writes, "Vinegar never catches flies" I assumed the best theatrical smile I was capable of and said, "Excuse me, but those cards cost money." He looked at me and asked: "How much?" I replied, "Two for five." He turned to the cash drawer, and, taking out a five-cent piece, handed it to me. Thereupon I placed another card on his desk.

Need I say more than that the ice was broken, and when I called later in the day I succeeded in selling a good bill, and our firm has sold him since during the time passed. Possibly if I had been *the Tartar* and had plainly told him what my opinion of him was I would have had only that satisfaction and probably have been introduced to the heavy porter.

Two years ago I was called from the road and given the position of "buyer." Not until I assumed the position had I been aware of the difficulty of wearing a smiling face when receiving the majority of traveling men who call on our firm. I am frequently drummed by men who offer goods which are not at all applicable to our trade, and when a negative is given, reply, "How can you know whether these will not sell when you do not keep them?" Let any traveling man take upon himself, for a short time only, the position of inside buyer, and when he goes forth on his next trip he will approach the patient and much-abused storekeeper with a more kindly feeling then ever before found place beneath his vest.

EX-TRAVELER.

A Legal Question.

WE ARE IN RECEIPT from well-known manufacturers of the following inquiry which relates to a matter of a good deal of general interest:

A appoints B as his agent to collect for him (both residing in different cities), agreeing to give B 25 per cent. on collections. B collects a $100 account, but check is given payable to the order of A. B has not much confidence in A's integrity and writes to him that he holds check for $100 and will send same on receipt of commission ($25), but gets no word from A and holds possession of check pending compliance of request for remittance. Has B the right to hold the check or is he by law bound to give it up and take chance on collection? If party or bank failed in meantime would B be liable to A for full amount of check; for amount of check less commission; or would A lose amount of check and be liable to B for commission besides?

Assuming the state of facts presented by our correspondent without modification, we would answer his questions as follows:

"*Has B the right to hold the check or is he by law bound to give it up and take chance on collection?*" B cannot hold the check. He must surrender it without delay and demand his commission. It follows, of course, that if B did not do this and the party or the bank failed in the meantime, B could be compelled in that event to make the amount of the check good to A, less, of course, the commission.

The reasons for these conclusions are readily apparent. B is employed to make the collection. He can, of course, collect the amount in cash, in which case there would be no difficulty. But if he consents to accept a check payable to A's order, he is then unable to deduct his commission, yet his agreement with B requires him to make a prompt remittance, and, as he cannot remit anything without remitting the full amount, that is to say, the check, he must do that. The obligation of a collector is unquestionably to collect promptly and remit at

once. That much is necessarily implied in the relation of the collector to his principal, even without any special instructions. He could be charged with interest in case he did not do so, and any loss occasioned by his failure to do so he must sustain. There is no reason why B should not be obliged to trust A for the amount of the commission, just as much as A trusts B with the amount or proceeds of the collection. Why should B have any rights or privileges superior to those of A? The relation of principal and agent is one of mutual trust and confidence, and each party must take his chance of the honesty of the other. Let us suppose that in this case the debtor, instead of delivering the check to B to forward to A, had sent it direct to A, as frequently happens. B is, of course, entitled to his commission just the same, because it is owing to his efforts that the debtor was induced to pay. He would, of course, have to look to A to pay the commission. This last case only differs from the case stated in the fact that the debtor chooses B as a medium or messenger through which to send the check. B is not obliged to accept the check. He has a right to demand the money. The offer of a check is not a good tender of payment of a debt. He could refuse to accept it, moreover, on the ground that the check should be made payable to his order, as he is the person who is charged with the collection of the claim and really the only one who should receive it. But if B is willing to waive these rights and to accept the check offered, this does not give him any more right to retain the check than he would have had to retain all the money if the amount had been paid in cash. In other words, a collecting agent has no lien on a check payable to his principal. His clear duty is to remit his principal at once,' and it is his own fault if he accepts such a check as compels him to remit the full amount without retaining his commission. The precise language of the inquiry is that A agrees "to give B 25 per cent. on collections." It is not said that A agreed to allow B to retain the commission. Of course that is usually implied, but construing the language closely, it certainly would indicate that in a case like the one in question B must trust to A to pay his commission just as a party to an ordinary contract must rely on the good faith of the other to carry it out.

We have not considered the effect of a power of attorney which A may have given to B. Such instruments are very common and they define the rights of the agent or collector. Sometimes they provide that the agent shall have a lien on the proceeds of all collections which may come into his hands for the amount of his commission. Such language might give the agent the right to hold the check until he received the commission. But even in that case he should protect his principal by having the check certified, and he should lose no time in giving notice to his principal of the facts. Sometimes the power of attorney gives the agent not merely the right to collect, but to act in all ways in the place of his principal with the same force and effect as the principal might, and to sign all receipts, releases or other paper writing which may be necessary for the purpose of collection. Even without a special provision authorizing an agent to indorse his principal's name on the check, this general clause so common in these instruments would probably justify an agent in signing and indorsing his principal's name and depositing the check in his own bank and collecting it even without the knowledge of the principal. But of course the agent should take the greatest care in determining whether the language did give him that authority, as otherwise he might be open to the charge of forgery even if he remitted the proceeds to his principal. We would not advise such a course unless the language authorizing the act was perfectly clear. This authority, moreover, as is not commonly understood, may be conferred verbally without any written power of attorney. Or the principal may have permitted his agent to do this without objection on previous occasions and thus established a course of dealings, which would, of course, protect the agent.

In the case in question, we infer that B is not an attorney-at-law. The general rights and obligations of such an attorney are usually the same as those of any other agent. There are, however, some rights possessed by an attorney-at-law which other collectors would not possess, particularly in case of suit. There are many cases where he has the right to sign his client's name without his client's knowledge or even consent, and yet bind his client without being in any way guilty of forgery. Many attorneys-at-law do not hesitate to indorse their client's name on checks payable to the client's order, where such checks come into their possession as collectors, &c. It is believed that, in New York at least, the courts would justify such a course and sustain the right of the attorney so to do, although the question has never been settled by an authoritative decision of the courts. But the courts would probably limit the power of the attorney to cases where he would have an unquestioned right to receive the money, and where there was something in the previous relations of the client and the attorney from which the client's consent could be fairly inferred or presumed.

A Remedy for Steamy Windows.

A CORRESPONDENT of *The Metal Worker* submits a sketch of a show window that is apt to be obscured by steam and inquires if the plan which they think of trying is likely to remedy the defect. The plan is as follows:

We are thinking of putting in a small gas pipe with outlets in it, as shown in the plan, so as to allow the heat from 1, 2 or 3-foot burner, as it may require, to pass up along the window. The window is for the display of fancy Hardware and we cannot allow any air in it at all. Referring to the cut, Fig. 749, A is a ⅜-inch gas pipe; C a funnel spread over the burner; D and E ⅜ or ¼ inch pipe with ¼-inch holes in it to allow the heat to escape. There is a lamp on the outside, but in cold weather it leaves a large circle where the heat strikes.

In commenting upon this idea *The Metal Worker* remarks:

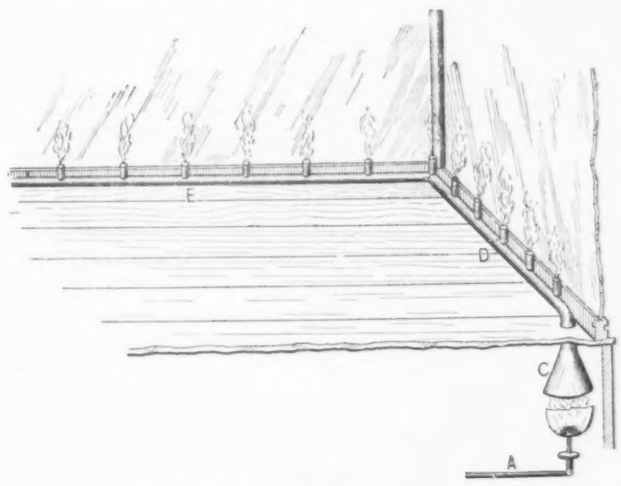


Fig. 749.—Remedy for Steamy Windows.

If our correspondent finds it so necessary to prevent all circulation of air within the window, we do not see how he expects to get any very lively stream of warm air from the burner he describes. Of course, if holes are provided at the top of the window there will be a current of warm air rising along the glass that may prevent the trouble he refers to. It must be borne in mind, however, that unless the funnel is brought well down over the flame so as to act as a chimney the heated air will not travel through the pipe in any great quantity. Furthermore, the apertures nearest the funnel will flow most freely and the further end of the pipe will receive little, if any, warm air. For this reason the holes should increase in size away from the gas flame. We have never seen plans referred to by our correspondent tried, so cannot speak from the point of experience. If there are other of our readers who can enlighten him in this matter we would like to hear from them.

A great many remedies have been suggested for steamy windows, one of the most common being to make a double window and permit the air to circulate between the two plates of glass or sashes, as the case may be. In this way the place for the display of the Hardware articles can be kept tight, and at the same time the circulation of air carried along the inner face of the outside window will prevent condensation.

Exports.

THE FOLLOWING are the exports of Hardware, Machinery, Metals and related goods from the port of New York to foreign countries for the week ended December 3, 1892. The items for Canada and Mexico include merchandise by seagoing vessels only; that by rail not being given. The totals following each port or country represent the value of all exports except specie:

ANTWERP.—Total, $292,212.

Hardware	1,918	Machinery	1,112
Agricultural Implements	41	Rubber Goods	900
M. rollers	200	Electric Material	1,796
Cartridges	139	Eyelets	595
Manufactured Wood	139	Iron Safe	200
Scales	5	Steel	2,029
Clocks	27	Tinware	6
Freezers	25	Carpet Sweepers	5
		Wringers	8

AFRICA.—Total, $173

Organ	30	Pumps	8
Tinware	3		

AMSTERDAM.—Total, $43,134

Iron Safe	40	Hardware	25
Sewing Machines	4,950		

ABERDEEN.—Total, $1.968

ADEN.—Total, $36,030

ANAM.—Total, $156

Sewing Machines	146

ARGENTINE REPUBLIC.—Total, $57,299

Sewing Machines	5,919	Agricultural Implements	10,776
Pumps	1,195	Slates	380
Hardware	1,381	Clocks	3,000
Scales	265	Manufactured Iron	356
Sandpaper	410	Tacks	302
Wagon Parts	185	Lamp Goods	1,300
Machinery	735		

BOLIVIA.—Total, $2,923

Steel Shoes	718	Machinery	107
Manufactured Iron	525	Steel Dies	720
		Buggies	222

BERGEN.—Total, $50

BREMERHAVEN.—Total, $1,128

Rubber Goods	865

BERLIN.—Total, $3,520

Machinery	54	Typewriters	1,728
Hardware	141	Woodware	200

BEYROUT.

Printing Material	$300

BARCELONA.—Total, $10,906

BRISTOL. Total, $14,602.

Zinc Ashes	630	Eyelets	204

BRITISH POSSESSIONS IN AFRICA. Total.....$4,011

Agricultural Implements	16	Plated Ware	81
		Machinery	3,157

BRUSSELS.—Total, $400

BUSSORAH.—Total, 7,313

BRITISH HONDURAS.—Total, $16,572

Manufactured Wood	25	Manufactured Iron	66
Sewing Machines	285	Lamp Goods	45
Organ	31	Pumps	57
Rubber Goods	2	Cutlery	85
Woodware	30	Nails	76
Combs	6	Scales	11
Store Trucks	46	Saws	240
Fish Lines	29	Twine	71
Firearms	48	Trunks	162
Hardware	4		

BRITISH EAST INDIES.—Total, $232,430

Clocks	1,429	Freezers	18
Typewriters	263	Woodware	71
Slates	20	Hardware	15

AUSTRALIA.—Total, $94,022

Hardware	3,566	Carriage Material	2,754
Manufactured Wood	1,426	Organs	1,785
Lamp Goods	1,090	Nails	63
Clocks	936	Firearms	1,155
Agate Ware	130	Rubber Goods	78
Saws	13	Carpet Sweepers	88
Whetstones	23	Pumps	115
Perambulators	255	Needles	81
Cutlery	410	Bird Cages	115
Carriages	825	Machinery	810
Store Trucks	10	Woodware	313
Manufactured Iron	1,817	Wringers	35
Agricultural Implements	1,092	Plated Ware	45
		Sewing Machines	130
		Windmills	145
		Cartridges	1,964

BREMEN.—Total, $105,820

Manufactured Wood	937	Hardware	633
Woodware	13	Agricultural Implements	62
Machinery	487	Plated Ware	12
Manufactured Iron	100	Cutlery	115

BRITISH GUIANA.—Total, $31,019

Sewing Machines	310	Trunks	90
Woodware	82	Agricultural Implements	63
Pumps	45	Slates	80
Trucks	40	Roofing	840
Carriage Material	82	Lamp Goods	85
Wagon	51	Twine	25
Hardware	116	Carriage	300
Badges	55	Agate Ware	13
Tinware	8		

BRITISH WEST INDIES.—Total, $177,097

Manufactured Wood	852	Manufactured Iron	300
Carriages	1,870	Lamp Goods	387
Bell	38	Wheels and Axles	21
Carriage Material	315	Slates	61
Store Trucks	34	Sewing Machines	245
Trunks	283	Nails	299
Sewer Pipe	944	Water Coolers	58
Scales	284	Coal	318
Twine	27	Wheels	30
Firearms	9	Road Carts	56
Machinery	79	Plated Ware	318
Electrical Material	472	Statuary	64
Cartridges	313	Cutlery	28
Clocks	9	Iron Safe	100
Tinware	18	Carts	555
Nails	14	Saws	6
Silver Ware	315	Brushes	16
Agricultural implements	3	Rubber Goods	54
Slate	27	Cartridges	714
Hardware	908	Woodware	317
Pumps	72	Organ	22
		Trunks	170
		Freezers	8

BRAZIL.—Total, $235,978

Manufactured Wood	154	Cutlery	2,524
Lamp Goods	1,872	Agricultural Implements	1,351
Freezers	69	Saws	206
Woodware	156	Pumps	434
Sandpaper	200	Brushes	68
Sewing Machines	210	Baby Cabs	307
Granite Ware	455	Machinery	3,027
Clocks	2,785	Carriage	95
Velocipedes	299	Plated Ware	377
Twine	1,389	Wheelbarrows	125
Firearms	1,430	Refrigerators	558
Nails	67	Coal	35
Tinware	433	Scales	274
Tacks	86	Cartridges	466
Paper Caps	16	Bran. Bags	50
Gun Covers	32	Coal Barrows	35
Truck	4	Cartridge Shells	23
Samples	25	Rubber Goods	387
Baby Carriages	98	Grindstone fixtures	5
Iron	314	Tin	439
Belting	75	Trunk Material	675
Perambulators	45	Sand Cloth	702
Wire Goods	25	Nails	360
Crucibles	64	Agate Ware	490
Grindstones	13	Tricycles	144
Hardware	8,903	Manufactured Steel	25
Manufactured Iron	30	Chalk Lines	67
	3,127		

COPENHAGEN.—Total, $217,831.

Hardware	480	Machinery	710
Rubber Goods	286	Emery Paper	35
Manufactured Iron	520	Freezers	44
Clocks	169	Manufactured Wood	135
Britannia Ware	30	Scythe Stones	85
Sandpaper	385		

CANADA.—Total, $31,394.

Bristles	3,572	Quicksilver	118

CUBA.—Total, $559,299.

Gas Fixtures	51	Miners' Supplies	60
Casters	125	Railroad Cars	38,345
Blowers	595	Pins	80
Basins	157	Baby Cabs	115
Plated Ware	445	Crucibles	50
Hardware	15,655	F. equipments	850
Manufactured Iron	15,118	Manufactured Wood	1,217
Coal	566	Lamp Goods	984
Sewing Machines	3,426	Pumps	604
Pipe Covering	808	Machinery	127,979
Scales	3,582	Electric Material	3 309
Divers' Appliances	343	Hand Car	35
Boiler Tubes	1,916	Scale Supplies	949
Writing Machine	45	Iron Pipe	4,554
Steel Shaft	300	Brass Goods	380
Cutlery	4,152	Rubber Goods	1,679
Wheelbarrows	535	Gas Appliances	2,250
Valves	68	Manufactured Steel	1,174
Railroad Material	9,615	Brushes	90
Mimeographs	17	Nails	123
Manufactured Copper	260	Tanks	1,160
Showcases	90	Woodware	144
Sandpaper	9	Saw Teeth	8
Washers	16	Sugar Cars	5,550
Blocks	63	Clocks	724
Grindstones	57	Slates	29
Wire Goods	10	Metal	78
House Trucks	120	Sand	21
Nails	1,221	Wagon Material	17
Hose	25	Refrigerators	21
Toilet Sets	8	Tinware	641
Bellows	105	Powder	53
Iron	1,385	Cartridge Shells	51
Tacks	5	Well Wheels	13
Spikes	723	Bird Cages	5
Copper Tubes	163	Crucibles	30
Iron	69	Locomotive Material	40
Locomotives	8,560	Emery Cloth	55
Boiler Composition	155	Saws	190
Asbestos	220	Trunk Material	273
Grindstones	20	Valises	330
Plumbers' Material	234	Belting	199
Locomotive Material	515	Silver Ware	25
Belting	57	Ship Chandlery	38
Bridge Material	6,000	Fire Engine	1,200
Thermometers	25	Agricultural Implements	1,119
		Car Material	874
		Steel Rails	6,328

CENTRAL AMERICA.—Total, $100,772.

Hardware	2,347	Brushes	29
Manufactured Iron	2,312	Car Seals	50
Lamp Goods	351	Gun Primers	27
Machinery	6,145	Mercury	356
Electric Material	1,746	Carriage Material	28
Cutlery	497	Manufactured Wood	464
Nails	155	Plated Ware	67
Woodware	119	Agricultural Implements	185
Trunks	12	Spikes	55
Brushes	86	Car	175
Stencils	38	Tinware	55
Iron	55	Hose	300
Clocks	32	Sewing Machines	1,412
Iron Safe	72	Scales	42
Railroad Supplies	1,947	Refrigerator	19
Sheet Zinc	191	Rubber Goods	102
Carriages	1,800	Freezers	17
Pumps	115	Wheels and Axles	604
Belting	227	Saws	159
Bird Cages	20	Stamped Ware	100
Babbitt Metal	22	Cartridges	124
Gun Implements	14	Dynamo Armature	700
Iron Bridges	3,733	Wheelbarrows	12
Tacks	5	Sewing Machine Material	23
Manufactured Steel	49	Axles	345
Percussion Caps	65		
Zinc	188		
Typewriters	80		

CHARKOW.

Pumps	$382

CHINA.—Total, $1,358.

Trunks	50

CHILI.—Total, $35,421.

Machinery	769	Manufactured Iron	1,705
Stoneware	25	Woodware	103
Nails	1,732	Agricultural Implements	1,742
Tinware	77	Freezers	742
Headlight	30	Scales	38
Cartridges	168	Tricycles	58
Sandpaper	108	Coal	1,050
Grindstones	18	Dies	100
Lamp Goods	406	Brushes	48
Velocipedes	45	Nails	210
Casters	252	Plated Ware	1,149
Tacks	75	Saw	65
Trucks	24	Cutlery	328
Hardware	1,952	Builders' Material	761
Hose	32	Electrical Material	1,470
Sewing Machines	150		
Manufactured Wood	152		
Fire Hose	290		

CHRISTIANIA.—Total, $140,089.

Tinware	14	Agricultural Implements	36
Manufactured Iron	8	Plated Ware	622
Britannia Ware	90	Clocks	763
Rubber Goods	753	Firearms	6
Manufactured Wood	113	Hardware	453

DEPTFORD.—Total, $39,100.

DUBLIN.—Total, $34,605.

Hardware	115	Manufactured Wood	285
Agricultural Implements	71		

DRONTHEIM.—Total, $250.

DOVER.—Total, $169,565.

DRESDEN.—Total, $70.

DANTZIC.—Total, $2,937.

DUTCH GUIANA.—Total, $21,483.

Trunks	25	Hardware	120
Woodware	4	Roofing Slate	1,510

DUTCH EAST INDIES.—Total, $32,583.

Lathe	32	Emery Wheels	64
Clocks	130	Plated Ware	305
Woodware	24	Manufactured Wood	119
Hardware	573	Rubber Goods	13
Whetstones	9	Firearms	30
Belting	270		

DUTCH WEST INDIES.—Total, $21,897.

Lamp Goods	50	Trunks	106
Woodware	25	Lamp	15
Bell	60	Rubber Goods	48
Tinware	18	Cutlery	10
Pumps	15	Trucks	15
Iron Pipe	68	Bicycle	58
Manufactured Iron	20	Carriage Material	16
		Hardware	34

ECUADOR.—Total, $19,873.

Machinery	257	Trunks	28
Nails	22	Pins	9
Sandpaper	16	Emery Paper	6
Hardware	302	Brass Goods	4
Manufactured Wood	69	Saws	188
Grindstone Fixtures	2	Gun Implements	95
Iron Pipe	282	Iron Safes	214
Electrical Material	1,000	Twine	10
Pumps	62	Manufactured Iron	5,421
Cutlery	427	Lamp Goods	43
Scales	41	Rubber Goods	30
		Sewing Machines	535
		Trunks	13

FIUME.—Total, $1,500.

FRENCH WEST INDIES.—Total, $12,022.

Agricultural Implements	11	Ice Pitchers	35
Velocipedes	12	Coal	100
Freezers	3	Hardware	10
Plated Ware	21	Woodware	2
		Sewing Machines	17

FRENCH POSSESSIONS IN AFRICA.—Total, $3,105.

GLASGOW.—Total, $440,526.

Machinery	700	Lead	24,350
Lamp Goods	500	Sewing Machines	141
Mineral Fiber	216	Clocks	6,552
Pumps	8,000		

GOTTENBURG.—Total, $14.590.

GEESTEMUNDE.—Total, $15.

GENEVA.—Total, $713.

Rubber Goods	152

GENOA.—Total, $34,890.

Agricultural Implements	25	Oil Well Supplies	86
Sewing Machines	87	Hardware	155

GIBRALTAR.—Total, $14,476.

Hardware	13

GHENT.—Total, $220.

HAMBURG.—Total, $549,343.

Hardware	3,266	Freezers	80
Manufactured Wood	2,012	Shears	555
Firearms	1,977	Rubber Goods	1,100
Sewing Machines	10,530	Britannia Ware	250
Isinglass	90	Whetstones	9
Scales	8	Manufactured Iron	430
Machinery	803	Agricultural Implements	259
Carpet Sweepers	10	Pumps	77
Minerals	522	Clocks	130
Nickel Oxide	4,663	Pre. Silver	23,861
Old Metal	2,280	Tinware	525
Wringers	14	Wagon Material	150
Trusses	250	Organs	350
Cash Registers	50		

HULL.—Total, $240,931.

Electrical Material	201	Agricultural Implements	50
Machinery	500	Organ Material	500

HELSINGBORG.—Total, $1,000.

HALIFAX.

Belting	$227

HONG KONG.—Total, $987.

HAVRE.—Total, $201,740.

Bobbins	75	Machinery	1,426
Clocks	850	Agricultural Implements	434
Typewriters	772	Skins	1,125
Metal	129	Rubber	1,500
Tinware	25	Emery Wheels	397
Lamp Goods	350	Crucibles	180
Shells	120	Rubber Goods	45
Woodware	150	Carpet Sweepers	300
Hardware	1,448		

HAYTI.—Total, $95,859.

Hardware	54	Lamp Goods	136
Manufactured Wood	64	Wheels	69
Nails	410	Carriages	1,571
Iron Safe	130	Organ	150
Bronze Ware	50	Hose	42
Fire Bricks	135	Machinery	96
Clocks	14	Scales	72
Nails	25	Chains and Anchors	65
Wheelbarrows	72	Machinery	30
Manufactured Iron	270	Zinc	21

IPSWICH.

Machinery	$376

JAPAN.—Total, $17,373

Rubber Goods	714	Machinery	72
Lamp Goods	40	Firearms	277
Hardware	188	Clocks	1,610

LIVERPOOL.—Total, $1,819,010.

Fresh Meat	155,847	M. Rollers	100
Manufactured Wood	6,221	Hardware	1,748
Woodware	760	Machinery	5,203
Cutlery	250	Organs	4,320
Emery	350	Clocks	4,504
Emery Ore	25	Manufactured Iron	797
Razor Strops	20	Agricultural Implements	118
Sandpaper	527	Emery Wheels	60
Rubber Goods	45	Windmills	82
Copper Matte	42,800	Cash Registers	150
Babbitt Metal	9,717	Electrical Material	10
India Rubber	1,392	Whetstones	40
Plated Ware	150	Sewing Machines	779
Ore	14,400	Wagon Material	925
Lead	750	Typewriters	500
Iron Safes	213	Lamp Goods	380
Spelter	2,750	Steel	500
Oxide Zinc	952		

LIBERIA.—Total, $201.

LISBON.—Total, $60,259.

LEIPSIC.—Total, $850.

Organ Material	169

LEITH.—Total, $807.

LEGHORN.—Total, $416.

LONDON.—Total, $759,873.

Typewriters	12,426	Pumps	77
Organs	5,360	Bird Cages	150
Agricultural Implements	100	Emery Wheels	26
Manufactured Iron	1,675	Copper Matte	11,000
Sewing Machines	98	Sandpaper	77
Woodware	256	Hardware	3,879
Lamp Goods	410	Manufactured Wood	4,062
Lead	19,400	Machinery	5,300
Tinware	50	Carpet Sweepers	205
Shells	120	Belting	560
Razor Strops	37	Clocks	1,756
Railroad Barrows	23	Rubber Goods	370
		Emery	40

LONDONDERRY.—Total, $10,257.

MEXICO.—Total, $231,117.

Manufactured Iron	17,562	Hardware	4,380
Lamp Goods	1,392	Manufactured Wood	221
Rubber Goods	293	Cutlery	2,104
Emery Cloth	196	Iron Pipe	5,241
Brushes	87	Tinware	323
Hose	277	Belting	390
Bridge Material	280	Scales	87
Pulleys	246	Millstones	
Axles	60	Agricultural Implements	197
Wire Goods	23	Nails	65
Roofing Material	140	Brass Goods	7
Electric Material	4,525	Woodware	91
Shot	55	Machinery	28,538
Firearms	312	Bicycles	763
Grindstones	12	Pumps	484
Nails	416	Cartridges	464
Cartridge Shells	1,986	Sewing Machines	2,143
Wads	8	Powder	18
Carriage Material	137	Ore Cars	844
Sandpaper	152	Saws	22
Fuse	2,212	Gun Primers	5
Percussion Caps	65	Railroad Material	251
Velocipedes	26	Valves	35
Water Closet Material	167	Copperas	208
Gun Implements	9	Plated Ware	17
Antimony	67	Manufactured Copper	205
Seals and Wires	480	Tacks	62
Crucibles	14	Packing	75
Iron Beams	290	Tricycles	136
Zinc	56	Gear Wheels	1,714
Belting	454	Headlights	90
Clocks	42	Carbons	125
Saws	54	Wheelbarrows	118
Windmills	310	Tinfoil	180
Sandpaper	15	Buckles	24
Plumbing Material	30	Cages	35
Boiler Tubes	397	Pumps	60
Fuse	1,776	Store Trucks	80

MILAN.

India Rubber	$1,225

MOSCOW.

Machinery	$52

MARSEILLES.—Total, $73,936.

Manufactured Wood	447	Agricultural Implements	4,134

MESSINA.—Total, $188.

MANNHEIM.—Total, $178.

NANTES.—Total, $715.

NEWCASTLE.—Total, $20,247.

Machinery	1,560

NOVA SCOTIA.—Total, $2,320.

Coal	1085	Brass Goods	58

NAPLES.—Total, $21,278.

NEW BRUNSWICK.—Total, $3,180.

Sand	450	Coal	2,730

NEW ZEALAND.—Total, $31,211.

Carriage Materials	544	Manufactured Wood	987
Lamp Goods	1,279	Agricultural Implements	584
Hardware	2,879	Wringers	75
Scales	123	Manufactured Iron	1,128
Organs	900	Mimeographs	15
Cartridges	15	Corks	44
Tinware	36	Cigarettes	525
Sewing Machines	6	Stocks and Dies	116
Firearms	69	Cutlery	585
Velocipedes	30	Pumps	85
Carpet Sweepers	40		
Clocks	56		
Nails	235		
Woodware	495		

ODENSE.

Manufactured Wood	$25

PERU.—Total, $16,917.

Rubber Goods	689	Firearms	141
Electrical Material	2,003	Springs	114
Belting	144	Carbons	50
Hardware	910	Pumps	96
Iron Pipes	130	Manufactured Wood	169
Valves	128	Cutlery	170
Plated Ware	22	Manufactured Copper	494
Sulph. Copper	86	Agricultural Implements	289
Metal	57	Manufactured Iron	2,032
Locomotive Tires	192	Machinery	86
Woodware	21	Brushes	20
Machinery	1,474	Wheelbarrows	126
Cartridges	195		
Railroad Material	600		
Candlesticks	60		
Wire Goods	54		

PORTO RICO.—Total, $43,788.

Manufactured Wood	6	Wagon Material	24
Store Trucks	13	Hardware	379
Clocks	238	Manufactured Iron	1,381
Woodware	62	Lamp Goods	82
Silver Ware	55	Scales	1,111
Iron Safes	270	Percussion Caps	2
Stove Board	750	Sewing Machines	100
Agricultural Implements	92	Cutlery	114
Water Closet	25	Rubber Goods	25
Metal Goods	110	Carriage	350
Fuse	22	Trunks	64
Iron	204	Tinware	39
Tricycles	19	Nails	119
Velocipedes	36	Sandpaper	11
Packing	13	Typewriters	35
Bicycles	50	Freezers	41

PALERMO.

Firearms	$1,016

PORTUGUESE POSSESSIONS IN AFRICA.

Machinery	$54

ROME.

Typewrtr Supplies	54	Copper	26,465

RYDE.

Lamp Goods	$83

ROTTERDAM.—Total, $163,417.

Electrical Material	215	Shears	300
Sandpaper	11	Machinery	385
Plated Ware	90	Iron Tubes	400
Washing Mach's	15	Wringers	380
Hardware	325	Manufactured Wood	5
Store Trucks	90	Copper	19,500

SAN DOMINGO.—Total, $12,706.

Manufactured Iron	507	Building Material	10
Lamp Goods	11	Twine	20
Baby Cabs	16	Hardware	248
Nails	42	Manufactured Wood	13
Pumps	45	Wheelbarrows	12
Carriage Material	54	Iron	38
Machinery	3,627	Wheels	181
Spikes	17	Nails	324
Shot	24	Sewing Machines	426
Coal	11		

STETTIN.—Total, $25,070.

Agricultural Implements	1,540

SANTANDER.

Machinery	$2,000

STOCKHOLM.—Total, $251.

SMYRNA. Total, $2,717.

SWANSEA.

Yellow Metal Sheathing	$790

TAUNTON.—Total, $191.

Manufactured Iron	28

TRIESTE.—Total, $33,784.

TUNIS.

Agricultural Implements	$2,661

UNITED STATES OF COLOMBIA.—Total, $106,189.

Manufactured Wood	247	Fuses	72
Lamp Goods	800	Water Closets	167
Cutlery	716	Belting	450
Needles	90	Manufactured Iron	3,261
Yellow Metal	63	Hardware	2,779
Pumps	319	Brass Goods	57
Woodware	259	Tacks	10
Sewing Machines	1,967	Copper	72
Scales	166	Nails	40
Trunks	100	Windlass	37
Rubber Goods	674	Tinware	82
Wire Goods	73	Powder	408
Nails	43	Cotton Lines	103
Plated Ware	121	Machinery	2,481
Freight Trucks	378	Clocks	240
Silver Ware	300	Pipes	41
Iron	27	Trunk Material	30
Manufactured Steel	95	Locomotive Material	69
Sewing Machine Fixtures	40	Electrical Material	549
Spikes	550	Store Trucks	4
Tin	14	Firearms	1,492
Cartridges	100	Roller Skates	15
Saws	373	Fuse	63
Grindstones	9	Wheelbarrows	14
Railroad Cars	8,475	Brushes	54
Slates	46	Carts	110
Boiler Tubes	52	Packing	136
Bicycles	35	Plumbing Material	232
Cartridge Shells	15	Car Material	700
Fish Line	81		

VALENCIA.—Total, $1,300.

VIENNA.—Total, $749.

Sandpaper	291

VENICE.—Total, $10,150.

VENEZUELA.—Total, $116,775.

Manufactured Wood	181	Lamp Goods	146
Scales	118	Sewing Machines	758
Machinery	3,757	Agricultural Implements	6
Electrical Goods	1,017	Cutlery	417
Clocks	51	Iron Safes	569
Needles	73	Woodware	31
Tinware	33	Rubber Goods	106
Coal	400	Nails	60
Iron Tubing	135	Wire Goods	16
Belting	50	Typewriters	75
Twine	156	Velocipedes	9
Packing	30	Freezers	11
Coolers	38	Presses	25
Carriage	50	Car Material	98
Wheels	56	Shell Boxes	43
Trucks	12	Iron Pipe	760
Hardware	1,441	Pumps	60
Manufactured Iron	664	Refrigerator	16
		Shears	214

WATERFORD.

Machinery	$30

ZURICH.

Rubber Goods	$802
Grand total	$8,023,229

St. Paul.

As we go to press we have the following advices in regard to the condition of business in that section from Farwell, Ozmun, Kirk & Co.:

There is nothing special to report, as we are approaching the end of the year Trade has continued very satisfactory, there being no interruption to it from severe storms, from which we have been entirely free this season. Thus far collections are not so good as we would like to see.

The amount of grain going to market is pretty large, though considerably behind last year, and the price is much lower, so that the prospects are that the crop will amount to several million dollars less than last year's crop realized.

It Is Reported--

That Herbert A. Ryan has been admitted a partner in the Hardware and Plumbing business of James H. Ferguson, Millbury, Mass. The style of the firm will hereafter be James H. Ferguson & Co. Mr. Ferguson's health has long been unsatisfactory, and during his recent illness Mr. Ryan had full charge of the business.

That Roxboro, N. C., has a new Hardware store, the proprietors of which are J. A. Lekin & Co.

That Andrew Welch has sold his interest in the Hardware firm of Fox, Welch & Co., Trenton, Mo., to M. K. Barnes, of Edinburg, the firm to be hereafter known as Fox Barnes & Co.

That Mrs. J. F. McLain, Ames, Iowa, has sold out her Hardware and Stove business to O. F. Martin.

That Davidson & Ackerman have disposed of their Agricultural Implement business at Sibley, Iowa, to Ackerman Bros.

That the Hardware and Stove firm of Boice & Palmer, Nashville, Mich., has been dissolved. F. T. Boice continues.

That Murphy & Bain have recently entered the Hardware business at Trenton, Mo.

That Hancock & McWilliams, Emerado, N. D., have dissolved partnership William Hancock will hereafter carry on the business.

That Luhman & Morgan, Hardware dealers, Howard, Minn., have dissolved partnership.

That Henry Thew has bought the Hardware business of Warren & Barnes at Vernon Center, Minn.

That J. C. Bright, Hardware merchant, Pottsville, Pa., is intending to erect a three story building on Broad street, Hazleton, where he will open a branch store. It will have a 35-foot front and will be 150 feet in depth. Philadelphia pressed brick will be used in its construction, and it will be finished in terra-cotta work. Work will be commenced about the first of the year.

That Charles R. Bennethum, Tinsmith, Reading, Pa., has retired from business, his son, Henry E. Bennethum, taking charge.

That the Hardware store of J. N. Messinger, Watsontown, Pa., was robbed on the 18th ult.

That T. S. Stewart, formerly engaged in the Hardware business at Springfield, Mass., is about opening a store in the same line at Orange.

That George Haller's Hardware store at Kossuth, Ohio, was entered by thieves on the 14th ult. and $200 worth of goods stolen.

That Beltz Bros. & Steelman, Hardware dealers at Boyd, Minn., have been succeeded by McCann & Parks.

That Thomas L. Price, general merchant, Pembina, N. D., has made an addition to his store and put in a stock of heavy Hardware.

That George E Sanders has succeeded W. L. Pierce in the Hardware business at East Calais, Vt.

That the store of M. Gray & Co., dealers in Hardware, Stoves and Tin, Orangeville, Province of Ontario, was recently destroyed by fire. The establishment was insured for $10,000.

That Arthur N. Bourdeau & Co. have succeeded the Hardware firm of Bourdeau & St. Jean at Detroit, Mich.

That C. S. Steward has retired from the firm of Unger, Milligan & Co, North Yakima, Wash., and the style now is Unger & Milligan.

That the growing trade of Malven, Gordon & Co., Port Jervis, N. Y., has rendered it necessary to provide increased storeroom to accommodate their large stock of goods The total floor space is now 50 by 100 feet. The establishment has recently been equipped with an elevator from the first to the second floor.

That A. H. Lyman, Athol, Mass., has bought the House-Furnishing Goods business of Charles F. Dow, and will probably consolidate it with his own Stove business.

That J. Herbert Thomas of the Hardware firm of John F Thomas & Sons, York, Pa., was married on the 23d ult. to Miss Caroline Oelhoff, daughter of Dr. Oelhoff of Cleveland, Ohio. The ceremony was performed at the residence of the bride's father.

That Knowlton & Stone, Keene, N. H., have fitted up a room over their store with suitable shelving, racks, &c., for carrying quite a large stock of Hardware which they cannot accommodate in the main store.

That Carmein & Curtis, dealers in Hardware and Implements, Elkhart, Ind., are closing out their Hardware stock. They will hereafter confine their business to the sale of Farm Implements exclusively.

That F. W. Denne has commenced the retailing of Agricultural Implements at Gibson City, Ill.

That Blake & Wilkinson, dealers in Hardware, Olean, N. Y., recently suffered loss by fire.

That the Hardware establishment of Bill, Barker & Jennings, Lynchburg, Va., was damaged by fire a short time since.

That S. K. Wells has opened a Hardware store at Dayton, Ky.

That W. J. Fifield has entered the Hardware business at Owonico, Minn.

That the Hardware store of G. S. Blodgett, Ashland, Neb., was robbed on the 1st inst. A small quantity of Knives and Razors was secured.

That a burglar who entered the Hardware store of Arthur T. Curtiff, Elgin, Ill., on the night of the 29th ult., was shot and killed by the proprietor.

That an agreement has been entered into for the consolidation of three prominent Council Bluffs (Iowa) concerns into one company. The firms in question are the Empkie Hardware Company, Shugart & Son and the Shugart Seed Company, the two latter being practically one firm. The title of the new company will be the Empkie-Shugart Company, and they will have a capital stock of $100,000. The stock and business of each of the firms named will go to the new organization, who will engage in a wholesale and retail Hardware business, coupled with a trade in seeds, &c., as conducted heretofore by the Shugart Seed Company. A line of Agricultural Implements may also be added, but this feature has not been decided on.

That the Fremont Hardware Company, Fremont, Neb., are contemplating moving to Tilden.

That Goodwin & Richard have been succeeded in the Implement business at Wauneta, Neb., by Goodwin & Kaylor.

That George Nichols, Iowa Falls, Iowa, has disposed of his Implement business to a new firm under the style of Eddy & Wilson.

That thieves entered W. C. Fluke's Hardware store at Clayton, Mich., on the 1st inst., and got away with $50 worth of merchandise.

That the Swift Hardware Company of Corry, Pa., have decided to open a branch store at Jamestown.

That the partnership between Phelps & Tower, Stove dealers, Holyoke, Mass., has been dissolved. The business will hereafter be carried on by C. H. Tower.

That the Hardware store of J. H. Hanson, Boyd, Wis., was damaged by fire on the 28th ult. Loss, about $3000; insurance, $2700.

That the long-established Hardware firm of Eames & Sprague, Northampton, Mass., has been dissolved, Mr. Sprague retiring on account of ill health. N. W. Lee, formerly of the firm of Lee & Phillips, Amherst, has taken Mr. Sprague's place in the concern.

That C. K. Lawson's Hardware store at Bairbury, Neb., was burglarized on the 14th ult., and some Revolvers and Tools taken.

That G. W. Bloodgood and his son, William Bloodgood, of Marine City, Mich., have purchased a Hardware store at Wyandotte.

That the warehouse of James McCullough, Hardware dealer, Kittanning, Pa., was destroyed by fire on the 16th ult.

That James Colee has commenced the Hardware business at St. Augustine, Fla.

That the Hardware store of C. E. Cox, Tuscola Ill., was entered by burglars on the 16th ult., and $200 worth of Knives, Cutlery and Revolvers stolen.

That P. J. Walsh's Hardware and Tin store at Pittston, Pa., was destroyed by fire on the 20th ult. Loss, $1000.

Price-Lists, Circulars, &c.

H. G. LIPSCOMB & CO., Nashville, Tenn.: Guns, Sporting Goods, &c. A well arranged catalogue of fine quality paper, containing 44 pages, illustrates with prices Guns, Rifles, Shot Pouches and Powder Flasks, Sportsmen's Clothing, Gun Implements, Rifle Sights, Ammunition, Loaded Shells, Fine Fishing Tackle, Reels, Bicycles, &c.

SWEATT MFG. COMPANY, Minneapolis, Minn.: Wheelbarrows. Particular attention is given to the manufacturing of Sweatt's Barrel Tray and Hubbard's Steel Wheel. The Barrel Tray is made with staves or slats so shaped and bent that when fastened together by two dowel bolts extending through the several slats they form a dish-shaped Tray, which is not liable to split and is very serviceable.

EMPIRE PORTABLE FORGE COMPANY, Lansingburg, N. Y.: Portable Forges, Hand Blowers and Hardware Specialties.

In catalogues Nos. 24 and 25, illustrations and prices are given of Empire, Western and Universal Portable Forges, Empire and Western Tuyere Irons, Hand Blowers, Small Blowers, Empire Sash Pulleys, Frame Pulleys, Sash Cord Fasteners, Mortise Guides and Foot Locks, Cast Steel Hatchets and Ice Picks, Daubers, Razor Strops, &c. A telegraphic code is given for these goods.

C. M. McClung & Co., Knoxville, Tenn: Iron Pipe and Fittings, Valves, Cocks, Oil Cups and Machinists' Supplies. Their illustrated supplement No. 1 to their general Hardware catalogue pertains to these goods, in which list prices are given. The assortment of these goods is large and well adapted to the requirements of their trade.

The Cleveland Stamping & Tool Company, Cleveland, Ohio: Solid Steel Spiders and Griddles. In their circular and price-list they describe these as made from high-temper steel, and several advantages of the material are alluded to in the circular. Attention is also directed to their Solid Steel Griddles, which are illustrated and briefly described. Price-lists of the Spiders and Griddles are presented.

The Fred. J. Meyers Mfg. Company, Covington, Ky., and F. J. Mattison, 76 Beekman street, New York: Wire Goods. Their special catalogue illustrates with prices, Bird Cages, Bird Cage Brackets, Paper Files, Hunters' Sifters, Riddles, Coal Screens, Steel Casting Brushes, Rat and Mouse Traps, Fly Traps, Corn Poppers, Spooled Hair Wire, Ticket Punches, Pruning Shears, Door Bells, &c.

McCray Refrigerator & Cold Storage Company, Kendallville, Ind.: Cold Storage and Cooling Rooms, butchers', saloon, hotel and restaurant Refrigerators, also any kind of Refrigerator work. Illustrations show Rooms and Refrigerators built on the McCray system, with such explanations as are necessary for a full understanding of the method. The company state that they are again compelled to enlarge their factory to meet the demand for their goods.

Swann, Whitehead & Clark, Trenton, N. J.: Lamps. Their artistic pamphlet illustrates in colors their Pavia and Cordova Artistic Vase Lamps, being a group of assortments selected with judicious care in the latest and most approved designs, with metal trimmings in rich gold finish. The patent attachment which they have applied to the B & H burner avoids the necessity of removing the shade or chimney when lighting.

Hillebrand & Wolf, Star Lock Works, Philadelphia, Pa.: Illustrated catalogue containing over 900 different styles of Locks. Among these are Trunk and Sample Case Locks, Padlocks with hasps and with staple plates, Trunk Padlocks, Padlock Hasps, Charm, Dog Collar and Box Padlocks, Locks with chain attached for securing satchels to car seats, locking bicycles, &c.; Spring and Scandinavian Padlocks, Dead Latches. The above goods are made in malleable iron, steel, brass and brass nickel plated. No gray iron is used in any of their Locks. All Brass and Nickel-Plated Locks are of solid brass. Door Springs and the Star Carboy Stand are included in the catalogue.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

In the market for Paints, Colors, &c., there have been no new developments during the past week. Fair orders for Prepared Paints and some of the recognized staples have been forwarded from the South by traveling salesmen, but this aside, the business has not only been of strictly routine character, but moderate in volume. That the probability of some revision in prices of White Lead ere long prompts more than ordinary caution in purchases of the pigment and of other goods that compete therewith is apparent, and the chances are that buyers will continue to go slow until something definite in the way of official announcement comes from headquarters. In other departments there is the usual quietude incidental to this season of the year. In base materials there has not been sufficient change to have the least effect upon manufactured goods of any description. That is to say, nothing has occurred to invigorate regular trade purchases or lead to ventures in the speculative direction.

White Lead.—The distribution at present is on a moderate scale, yet very fair for the season, and, while individual orders are uniformly of homœopathic character, the product of corroders and other manufacturers seems to be going out quite as freely as usual at this season of the year. Jobbers' purchases are gauged very closely by their distribution, however, and evidence is not wanting that the uncertainty connected with future prices for the product of the National Lead Company has more or less restraining influence all along the line. Pending developments jobbers pay little attention to the "official" card and not infrequently let small parcels go at within about ¼¢ of the cost price for large lots.

Red Lead and Litharge.—The old line of prices for the various grades prevails and the situation of the market remains as before, there being nothing more than routine winter season demand and practically no competition among sellers. In fact, rivalry is confined to the lower grades used for glass manufacture, and even there the movement is extremely narrow. Orange Mineral is moving out in routine way and prices for both foreign and domestic remain unchanged.

Zincs.—Some manufacturers note the receipt of remarkably good orders for American Oxide during the past week, some of which called for deliveries six months ahead and very few for less than three months' supply. In this connection the business effected compares very favorably with the average, and, as far as can be learned, the contracts for the various grades are made at the former line of prices. In foreign Zincs the business passing is of strictly routine character, moderate all told and at former prices.

Colors, &c.—No new feature has developed in any branch of the market for either dry or Oil Colors. Contracts for bulk goods continue to be of commonplace character, yet very fair all told, and the movement in prices is extremely narrow. The higher grade goods for painters' use find rather slow sale, and there is room for considerable improvement in sales of specialties in the line of Mixed Paints. Prices are somewhat variable in the latter line, but show no radical change.

Miscellaneous.—Block Chalk has been exceedingly quiet. Very little stock has arrived by steamer; offerings of sail cargoes are moderate and the demand is exceedingly tame. Whiting and Paris White are nearly as slow, but such as it is, the business passing is at steady prices. The same report will apply to Putty. Barytes, Terra Alba, Talc and China Clay are momentarily slow and moving at about former prices.

Oils and Turpentine.

The most prominent feature in the Oil Market has been a quite large business in Cotton Seed Oils and a considerable turnover of crude Sperm Oil, the latter in New Bedford. The Cotton Seed product has advanced considerably in price, and the surface appearances are that crude Sperm is stronger by about 2¢ ₱ gallon. Oils with which those specified come into competition naturally improve more or less, but there is hardly the movement in prices that appears in sentiment and the volume of business, drawing the line at Cotton-Seed Oils, makes a merely ordinary exhibit. The unsettled condition of the Market for Lard and inferior Greases still exerts a certain amount of influence upon lubricants generally; but the season for hog-cutting is now so well advanced that doubts of present prices being maintained are somewhat frequently expressed. Buyers' operations are governed by their convictions to a great extent, and are, therefore, of very conservative character.

Linseed Oil.—New business has been moderate and of strictly routine character. City crushers have made no changes in their prices, the offering by out-of-town manufacturers has been uniformly at old rates and from second hands not enough has come out to disturb values in the least. In short, the market has developed no distinctly new features. The only matter of particular interest at present is the negotiation to consolidate the Linseed Oil interest with the National Lead Company.

Cotton-Seed Oils.—The record for the past week is a larger volume of business and a higher range of prices for both crude and refined product. Fully 3000 barrels crude changed hands at from 35¢ up to 37¢ for prime quality. Over 4000 barrels prime Summer Yellow went at 38½¢ @ 40¢, several parcels of Summer White at 40¢ @ 41¢, and a moderate quantity of Butter quality at 42¢. To a certain extent the advance has been forced by speculation and covering of short sales by grinders, who made contracts liberally early in the season, but the market possesses other strong features, not the least among which is the enormous increase in the consumption of lard compounds in which Cotton Oil is a prominent ingredient and an apparent shortage in the supply of Seed this season.

Lard Oil.—City pressers have secured a fair supply of raw material at somewhat modified prices, but the speculation in hog products generally keeps matters in unenviable shape and the offering, as well as the demand, is extremely conservative. As a matter of fact, both buyers and sellers act as though any departure from hand-to-mouth lines is extremely risky at the present time. Hence rather slow business and continued partiality to low grades where the latter can be used to any advantage. Prices stand just about as they were a week ago.

Fish Oils.—In the New Bedford market upward of 3000 barrels crude Sperm Oil have been sold at 68¢ @ 70¢, and the latter rate is now apparently the bottom. Crude Whale Oil has been dull, and smallness of supplies in first hands restricts business in crude Menhaden. The manufactured products continue to move out very nicely in jobbing way at full former prices. Cod Oils rather slow of sale, but very firm at old prices. Herring Oil fails to come up to the front in any prominence.

Miscellaneous.—Olive Oil moves out slowly, and the business passing is at old prices. Palm Oil also rather slow and without change in value. Cocoanut Oil is without change in price and rather dull. Red Oils firm as to price, but moving in moderate quantities only.

Spirits Turpentine.—Daily sales have been of about the usual character for this season of the year, and nothing new has transpired in the relation of supply and demand. Prices have fluctuated within narrow bounds, and the range at present differs slightly from that of a week ago.

Mikado Improved Lawn Sprinkler.

The Haydenville Mfg. Company, 73 Beekman street, New York, have recently introduced the Mikado improved lawn sprinkler, as illustrated in Figs. 1 and 2, which they refer to as most efficient.

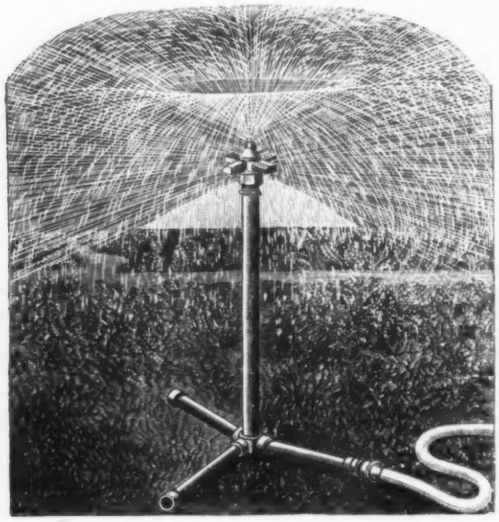


Fig. 1.—Mikado Lawn Sprinkler in Action.

Fig. 1 shows the sprinkler put together and in operation. It is exceedingly strong and durable, constructed of standard wrought-iron pipe, about $\frac{7}{8}$ inch outside diameter, each section being tapped at both ends to permit its being quickly set up or taken down by the most inexperienced if necessary. Fig. 2 represents the head or top, made of cast brass, nickeled, with four arms, 3½ inches from end to end, $\frac{7}{16}$ inches thick from top to bottom, intersecting each other at right angles. There are three holes on the bevel of each arm, four just above the circular bevel and one directly in the center. When in action the head revolves, throwing a spray about 40 feet in diameter and fully 15 feet high with a pressure of 35 pounds. This will obviate the necessity of frequent changes of location, and afford the atmosphere an opportunity to remove the chill, if any, from the water, before coming in contact with flowers, turf, &c. If this covers a larger circle than is wanted it can easily be regulated at the faucet, tapering it down as desired. The sprinklers are packed one each in a neat wooden box measuring outside 12½ x 3½ x 3½ inches, weighing altogether 3½ pounds.

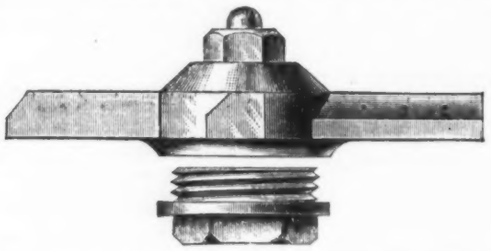


Fig. 2.—The Top with Bottom Unscrewed for Cleaning.

A circular is sent out by Samuel H. Blackwell, Fairfield, Maine, with his tenth annual calendar, 1893, in which the hope is expressed that it may be found worthy of a place on the walls of the customers' homes, and remind them that he is still trying to deserve a share of their trade. He states that his stock will be kept up to its past standard of quality, and expresses a desire that customers will make his store their headquarters when in town.

Screw Plates with Tap Wrench.

Wells Bros. & Co., Greenfield, Mass., are putting into every case of their different assortment of Little Giant screw plates an adjustable tap wrench, the tool being shown at the back of the box herewith illustrated. The wrench holds all the variety of taps included in each assortment of screw plates. This addition is referred to as making this style of plate practical as well as desirable, as it is considered essential to have a good tap wrench with a set of taps. The enlarged cut of the tap wrench shown in their advertisement in this issue represents the wrench put into assortments cutting to ¼ inch. The manufacturers make the point that the addition of the wrench is equivalent to giving each purchaser $2.50 worth of tools, as they make no change in the list price of the plates, this remaining the same as heretofore, when sold without the tap wrenches.

Screw Plates with Tap Wrench.

Another specimen of the new iron frame style of architecture now in vogue for business purposes will be an eight-story store to be erected on the site of the Schermerhorn mansion in Twenty-third street. The front will be of Indiana limestone and the walls of brick.

Bottom Protecting Saucepan.

Stransky & Co., 265–267 Canal street, New York, are introducing this article as here shown. It is made in enameled blue and white ware imported by them, stamped from one piece of metal, with three metal protectors or studs riveted to the bottom of the utensil. These raise it slightly from the heated surface, thus permitting the circulation of hot air underneath. The design of this arrangement is to prevent the scorching or browning of food.

Bottom Protecting Saucepan.

The Peerless Mop Wringer.

The Gravity Twine Box Company, 9 South Water street, Cleveland, Ohio, are making the above wringer, as shown herewith. It is made of wrought iron, japanned, with rollers of hard maple, handsomely finished. The rollers are brought together by pressing the foot on the wrought-iron foot piece. The manufacturers claim that the wringer is simple, durable; that the cloth is wrung and the mopping completed without the hands touching the mop or water, and that by its use the drudgery of scrubbing is done away with.

The Peerless Mop Wringer.

Akron Tool Company, Akron, Ohio, advise us that they have recently received orders from the Georgia Southern & Florida Railway, the Alabama Midland and the Boston & Maine Railway for their

McNeil patent balanced charging barrows for coaling stations. The company state that these barrows are giving much satisfaction to the railroad companies who are using them for this purpose. The company are also furnishing them to gas companies for use in handling hot coke and to blast furnaces for charging with coke and ore, for which purposes the barrows are referred to as especially well adapted.

Acme and Crown Lawn Rakes.

Among the goods being put on the market by Gibbs Mfg. Company, Canton, Ohio, for whom John H. Graham & Co., 113 Chambers street, New York, are general agents, are the two lawn rakes as illustrated in the accompanying cuts. The head of the Acme rake, Fig. 1, is made of a single piece of sheet steel, having clips punched through that clasp over the teeth. The shape of the teeth is such as to ride easily without tearing the sod or clogging. The point is made that a large amount of grass, &c., is carried, owing to the fact that the teeth extend on either side of the head, forming a light hood. The handle is attached by a strongly braced socket. A desirable feature of the rake is that by reversing the rake single or bowed teeth can be had, the one for cut grass and the

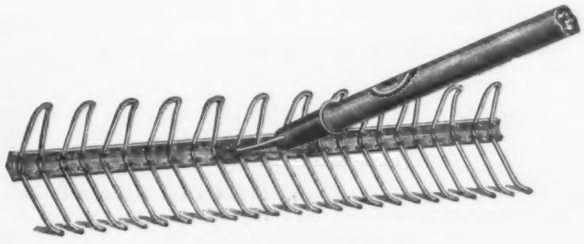


Fig. 1.—The Acme Lawn Rake.

other for leaves and rubbish. The rake is galvanized, preventing rust, and the manufacturers state that the teeth cannot become loose.

In the Crown rake, Fig. 2, the head is of steel pipe into which the teeth are securely held so, the manufacturers remark, that they cannot become loosened. The

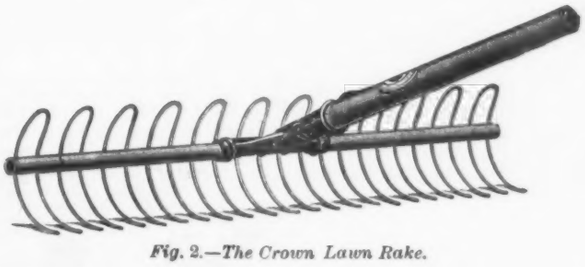
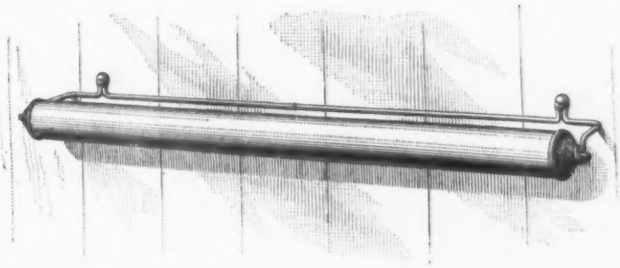


Fig. 2.—The Crown Lawn Rake.

handle socket is strongly made of malleable iron, well braced and firmly fastened to the head by a new clamping device. This rake has the same advantages as the Acme for raking grass, leaves and rubbish. The rake is galvanized to prevent rusting, and it is claimed that the teeth will not clog or catch in the sod when raking. In the description given in the *The Iron Age*, December 8, of the Acme rake, the accompanying cut was incorrect.

Hardwood Towel Roller.

Joseph A. Bogardus, 167 Chambers street, New York, is offering a neat towel roller, as here illustrated. It is made in hard woods, including black walnut cherry, ebony, &c., of a uniform diameter of 1⅜ inches, extreme length being 21 inches. The wire frame or support is easily attached to door or wall by means of two round-head screws packed with each roller, the metal parts being nickeled



Towel Roller.

to prevent corrosion. At each end of the roller a coppered wire pin is inserted, on which it revolves, on much the same principle as a shade roller.

Hall's Axe and Hammer Handles.

The Hall Mfg. Company, Rockland, Maine, are offering the above device, as illustrated in the accompanying cuts. The form in which the handle is made, with the exception of the piece cut from the top, is shown in Fig. 1, and the different parts of the fastener in Fig. 2. In handling an axe the handle is worked down to fit the eye, particular care being taken that it fits tightly in the inner end, and that the end of the handle is flush with the outer end of the axe. The nut and linings are then placed in the chamber of the handle and the thread on the bolt screwed into the nut, through the grooves

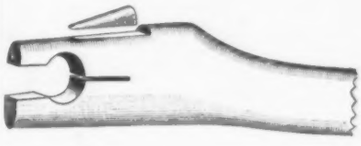


Fig. 1.—Hall's Axe Handle.

in the linings, and tightened with the aid of a wrench until the handle is firm in the axe, as in Fig. 3. Should the outer end of the handle not nearly fill the eye of the axe, the bolt is tightened sufficiently to hold the fastener in the center of the eye, leaving the head of the bolt crosswise the axe, when the handle may be wedged above and below the bolt until the space is filled. In this way the full expanding power to tighten the bolt and hold the handle is reserved. Should the handle be too small for the inner end of the axe a

Fig. 2.—Hall's Axe-Handle Fastener.

piece may be cut out, as in Fig. 1, and a key made large enough to fill the axe at this point. It is suggested by the makers that with this device, when a handle is broken and the axe needed for immediate

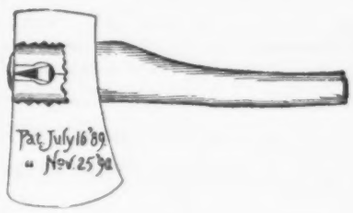


Fig. 3.—Manner of Fastening Handle in Axe.

use, the chopper is not subjected to the delay of boring or burning out the broken handle, with the danger of spoiling the bit and the temper of the axe; and that a chopper who has a long distance to go can take with him a spare handle, and if the handle in the axe breaks the fastener can be put in the spare handle, thus saving much valuable time. Handles and fasteners adapted to hammers are also made, as shown in Fig. 4.

Fig. 4.—Hall's Hammer Handle.

Noiseless Store Ladder and Track.

M. Croissant, 202½-204 Washington avenue, Albany, N. Y., is introducing this ladder and track, as shown in the accompanying illustrations. The ladder is shown in working position in Fig. 1, mounted on two 5-inch vulcanized rubber-tired wheels. At the top the sliding hanger or car is

Fig. 1.—Noiseless Store Ladder and Track.

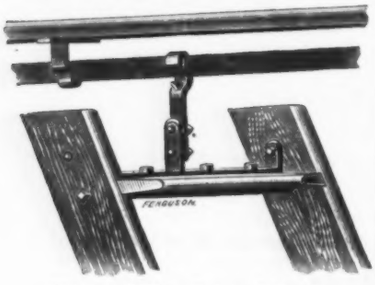


Fig. 2.—Sliding Car and Track.

boxed with hardwood boiled in tallow, to prevent friction and to insure a noiseless movement. The track is of 1¼ x ¼ spring steel set on edge and fastened to neat,

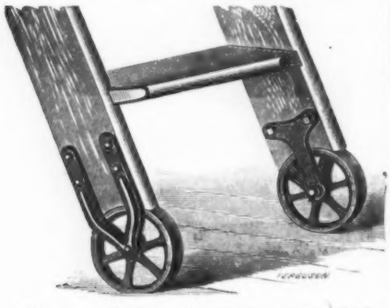


Fig. 3.—Wheels and the Manner in which they are Applied.

strong brackets, imparting to the whole a neat and attractive appearance. Enlarged views of the sliding bar and track, also of the wheels, are given in Figs. 2 and 3. The adaptability of this form of hanger to go around curves, as in Fig. 4, on this track is an interesting feature and opens

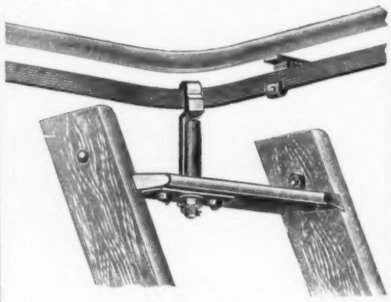


Fig. 4.—Swivel Car and Curve for Turning Corners.

up possibilities in store arrangement which have heretofore been impracticable.

Caldwell's Implement Bracket.

The accompanying illustration is of an implement bracket manufactured by the Heckel Hardware Company, St. Louis, Mo. The bracket consists of a base and two parallel arms, the upper side of the arms being provided with notches. The base plate is fastened to the wall or rack by screws. The projecting arms are of sufficient length to hold half a dozen or more rakes, hay forks, manure forks, hoes, &c., or any other tools of this character. This bracket has advantages over harness hooks or other devices not strictly intended for the purpose of hanging and displaying tools and implements.

Caldwell's Implement Bracket.

The Excelsior Oval Former.

Hibberd & Spinner, 9 Cliff street, New York, are just putting on the market the Excelsior oval former, which is a machine that will be appreciated by all sheet-metal workers, as it is especially adapted for furnace pipes, wash boilers, collars and in fact to all round or oval sheet-metal work. A general view of the machine is shown in Fig. 1, while a sectional view, illustrating the position of the rolls, is shown in Fig. 2. The device, it will be noticed, resembles, in its general features, the ordinary former for round work. The forming roll, however, is arranged for quick adjustment by a handle, so that the machine can be used for either round or oval work. In making oval pipe, the forming roll is raised by means of the smaller handle shown in Fig. 1, adjusted by the set screw, and the metal passed between the three rolls until the curved end is completed. The forming roll is then dropped by lowering the handle and the metal passed on flat through the rolls until the proper width of the pipe is reached. The forming roll is then raised as before and the metal curved for the other side of the pipe. When it comes out of the machine, it is only necessary to complete the seaming or rivet it, as the case may be. As shown in Fig. 2, the forming roll is carried by bearings in a vertical slot and is raised or lowered by means of two cams working on either end of a rod, the rod being rotated by the lower handle. The feeding rolls have adjustments at each end for different gauges of metal, and the forming roll has likewise set screw adjustments by which the diameter of the curve can be altered.

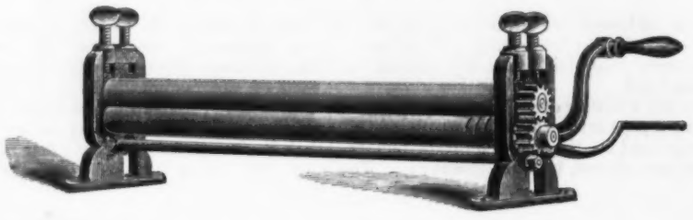


Fig. 1.—The Excelsior Oval Former.

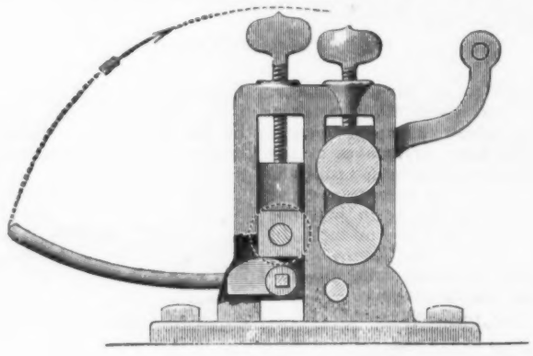


Fig. 2.—Sectional View of Former.

The rolls are made to take 30-inch metal and at one end of the feed rolls grooves are cut to accommodate the wire in wash boiler and similar work. It will be understood

that the attachment does not interfere at all with round work, for in turning cylinders the forming roll is simply raised to position and adjusted by means of the set screws. Circles of any diameter can be formed by this machine, which will bend any iron up to No. 18 gauge.

New Padlock.

The accompanying illustration displays an oblong-shaped Scandinavian tumbler padlock, made by Hildebrand & Wolf, Star Lock Works, Philadelphia, Pa. They are manufactured both with and without chains, a full line of sizes in malleable iron and red brass. One of the special features

Scandinavian Tumbler Lock.

of this lock is that every bolt is provided with its own tumbler to prevent shaking, which makes it specially suitable for railroad purposes, as they can be made in 200 changes.

Goodell's Improved Ratchet Brace.

C. E. Jennings & Co., 79 Reade street, New York, are introducing Goodell's improved bit braces, both plain and ratchet, the ratchet brace being here illustrated in Figs. 1 and 2. The attention of the trade is called to several new features in this brace by the makers. When the arm enters the socket attached to the head a milled washer is used in connection with a hexagon set nut, as shown in Fig. 1, to take up the wear incidental to use. On each side of the wood handle the metal pieces provided to hold the handle in place have each a set screw let in flush, so that if necessary, by loosening the screws, the metal pieces can be moved closer to compensate for wear. The dog to operate the ratchet, as seen in Fig. 1, when parallel with the sweep, leaves it virtually a plain brace; moved either way makes a right or left ratchet, as desired. Fig. 2 shows the construction of the jaws, which are so made that they open parallel, admitting a larger bit stock than usual. The braces are of forged steel; sweep and jaws are full polished and nickeled, with cocobolo handle and lignumvitæ head.

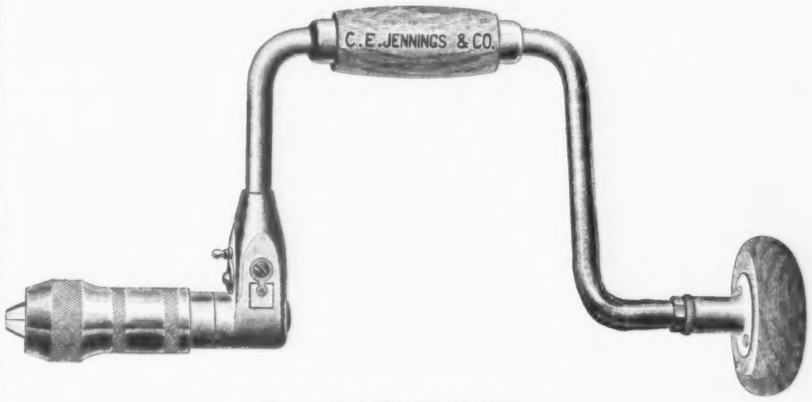


Fig. 1.—Goodell's Ratchet Brace.

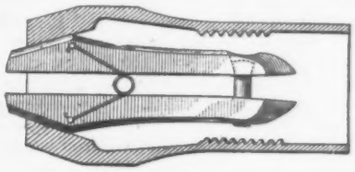


Fig. 2.—Section Showing Construction of Jaws.

at the hinges, as shown in Fig. 2, making it very convenient to clean and avoiding all places where grease and dirt can accumulate. The irons are provided with long wooden handles, making it impossible to burn the fingers. The bail attachment, shown in Fig. 1, also permits them to be conveniently carried. Another great convenience to which the manufacturers allude is that the irons can be used on any size stove, and on gas or gasoline stoves without any extra attachments.

The Wagner Waffle Iron.

The Wagner Mfg. Company, Sidney, Ohio, have just brought out a waffle iron possessing several special features to which they direct attention. General views of the iron are shown in the accompanying illustrations. The principal improvement in this waffle iron is that the pans separate

Fig. 1.—The Wagner Waffle Iron.

Fig. 2.—Iron with Pans Separate.

Pure Nickel Cooking Utensils.

The Bronson Supply Company, Cleveland, Ohio, New York office 72 Beekman street, are now making and introducing pure nickel cooking utensils, for the present confining themselves to hotel saucepans, made in the same forms as their Never-Break ware, and in three sizes, having a capacity of 7, 9 and 12 quarts. These are formed from one flat piece of metal in the same manner as their regular line, the novelty being in the material of which they are made. This metal is manufactured in Germany under the patents of Dr. Fleitman of Iserlohn. It is made by rolling a sheet of pure nickel on one or both sides of a plate of steel, the sample before us having 10 per cent. pure nickel for the inside and 5 per cent. for the outside, that being the proportion used by the Bronsons, although the metal can be

made any proportion of nickel, on one or both sides, to suit the demand, some articles abroad being produced of all nickel. The first operation results in a combination sheet ⅛ inch thick, which is subsequently rolled to any gauge desired, the articles referred to being No. 16 gauge, warranted 10 per cent. inside and 5 per cent. pure nickel outside, each pan being so stamped. This metal is alluded to by the manufacturers as unexcelled for culinary utensils, being impervious to acids and not susceptible to corrosion, a sample shown having been immersed in oil of vitriol (sulphuric acid), the steel center being eaten away while the nickel is left intact. While comparatively new in this country, such ware has been

The Ford Bit.

quite extensively adopted by hotels, clubs, hospitals and public institutions in Europe, upon the recommendation of chemists, doctors and metallurgists. The Bronson Supply Company have secured the sole right to manufacture culinary utensils of it in this country, making a start on hotel ware, but desirous of employing it more generally as soon as a demand can be created for it. The advantage claimed over copper is that vessels made of that metal when subjected to hard usage must be frequently retinned. The company are making an effort to introduce it in such places as require a good article and necessarily give a severe test, it so far being in use, we are told, in the Brunswick Hotel, New York; Somerset Club and Young's Hotel, Boston; Tremont House, Chicago; the Stillman, Weddell, Hollenden and Forest City Hotels, Cleveland, &c. The ware is easily cleaned and insures the proper preparation of food free from the objections so frequently encountered in many implements for such purposes. They invite criticism from those anxious to secure a good article.

The Ford Bit.

The Ford Bit is being introduced by the Ford Bit Company, Holyoke, Mass., as illustrated herewith. It is a single twist bit so constructed as to permit the recess between the blades to find its greatest depth in front of the center and to allow that side of the hollow to be so concaved as to prevent the chip from crowding outward against the side of the hole, but to be carried directly back and out. The makers claim that the construction of the bit is radically different from others, that the operation in boring is essentially different, and that it gives exceptional results. Also that the bit has been subject to the most severe comparative tests that could be devised, and in every instance has shown the most satisfactory results.

Belgian Prices.

"Syndicates," as they call them abroad, or "combinations," as is the popular term here, seem to have a hard time of it in Belgium. The Belgian correspondent of London *Iron* reports:

For 60 tons of nuts and bolts the Société des Boulonneries de La Croyère submitted the lowest offer at 191 francs per ton, while the next tender, by the Société du Ruan, was 195 francs, and the next, by the Société des Boulonneries de La Louvière, 199 francs. Now these bolts must be made out of No. 4 iron, for which the price of the syndicated iron works is 150 francs, so that only 41 francs per ton is left for working the crude bars into nuts and bolts, packing them and forwarding them to Malines. As the three lowest tenders approximate so closely, it is evident that a general breach of the rules of the syndicate is contemplated. Another adjudication took place on November 30, which indicates the difference between the convention rates and the real prices. For 200 tons of fish plates in mild steel or iron no competition was expected from iron works, so that the Société de Marcinelle et Couillet and the Société des Aciéries d'Angleur divided the order at 162½ francs per ton, while for 180 tons of joint plates in iron or steel it was known that ironmasters would try to secure the order. The result was that the Ougrée Steel Works sent in the lowest tender at 114.90 francs for steel; while the Société de Monceau sur Sambre approached this price with 114.94 francs for iron, or less than a halfpenny a ton higher than Ougrée. This shows a difference of nearly 50 francs per ton between the syndicated prices and the real ones.

It may be of interest to note that the above price for bolts is equal to 1.67 cents per pound. The Ougrée price for steel angle bars was a shade over 1 cent per pound.

The completion of the Chignecto ship canal in Canada has been undertaken by a responsible firm of contractors, and the scheme is believed to be entirely practicable in an engineering sense. There is, therefore, reason to expect that the work may be completed during the coming year, but there are few persons who believe that the trade between the Straits of Northumberland and the Bay of Fundy will ever pay for transporting ships across the isthmus. About $4,000,000 have been expended.

A boat builder in Philadelphia is constructing an eight-oared racing shell of aluminum. It will be 62 feet long, built in two pieces and joined amidships. The metal is $\frac{1}{16}$ inch thick, weighing about 7 ounces to the square foot. The shell completed will weigh 175 pounds.

CONTENTS.

PAGE.

The Webber Side Self-Dumping Car. Ill.....1151
Weight in Marine Engines.....1151
Melville on Steel Castings 1151
A Fuel-Gas Plant Tested.....1151
World's Fair Notes. Illustrated 1152
Basic Steel Manufacture in Belgium.....1153
Tin Plate.—I. Illustrated. 1154
Telegraphy by Induction 1156
Steamship Efficiency.....1157
The Illinois Steel Company's Interstate Commerce Suit 115
The Hicks Gas Engine. Illustrated.....1159
The Foundrymen's Association. 1159
Endurance of Tempered Steel.....1160
A New Recording Pressure Gauge. Illus...1161
The Sebenius Method of Removing Blow-Holes in Steel.....1161
The Geometric Boring and Turning Tool. Illustrated.....1162
The Turrets of the Battle Ships.....1163
Standard Roll Lathe. Illustrated.....1164
Random Shop Notes.....1164
The Week 1165

Editorials:
Small Percentage of Failures.....1166
The Efficiency of the Steam Engine Jacket.1166
The Engineer Corps in the Navy.....1167
American Ocean Navigation.....1167
The Interstate Commission and the Illinois Steel Company.....1167
The Currency Question 1167

Personal.....1167
An Increased Iron Output.....1168
Correspondence.....1169
Washington News.....1169
Mahoning and Shenango Valleys.....1170
New Publications.....1170
San Francisco News.....1170
Trade Publications 1171

Manufacturing:
Iron and Steel 1171
Machinery.....1172
Miscellaneous.....1172

Trade Report:
Philadelphia.....1173
Chicago.....1174
Cincinnati.....1175
Pittsburgh.....1175
Cleveland.....1176
Louisville.....1177
Detroit.....1177
St. Louis.....1177
New York.....1177
Metal Market 1178
Financial.....1178
Coal Market.....1179
British Iron and Metal Markets.....1179
The Greatest Steel Record 1179

Hardware:
Condition of Trade 1180
Notes on Prices.....1181
The Cut Nail Card. 1182
Export Notes.....1182
The Hardware Club.....1183
Hardware in New Zealand.....1184
Iowa State Traveling Men's Association...1184
The Pike Mfg. Company's Catalogue. 1184
A Convenient Wire Nail List.....1185
Trade Items.....1185
Protection to Merchants.....1186
Travelers' Experiences.....1186
A Legal Question.....1186
A Remedy for Steamy Windows. Illus ...1187
Exports 1188
It Is Reported— 1190
Price Lists, Circulars, &c.....1190
Paints and Colors 1191
Mikado Improved Lawn Sprinkler. Illus.1192
Screw Plates with Tap Wrench. Illus.....1192
The Bottom Protecting Saucepan. Illus..1192
The Peerless Mop Wringer. Illustrated...1192
Acme and Crown Lawn Rakes. Illus. 1193
Hardwood Towel Roller. Illustrated 1193
Hall's Axe and Hammer Handles. Illus...1193
Noiseless Store Ladder and Track. Illus...1194
Caldwell's Implement Bracket. Illustrated.1194
The Excelsior Oval Former. Illustrated..1194
New Padlock. Illustrated.....1195
Goodell's Improved Ratchet Brace. Illus..1195
The Wagner Waffle Iron. Illustrated.....1195
Pure Nickel Cooking Utensils.....1195
The Ford Bit. Illustrated.....1196
Belgian Prices.....1196
Current Hardware Prices.....1197
Current Metal Prices. 1204

Current Hardware Prices.

DECEMBER 14, 1892.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures amed.

The character @ is used to indicate a range of price; thus discount 50&10@50&10&5 % signifies that the goods in question are sold at prices ranging from discount 50 and 10 % to discount 50 and 10 and 5 %.

Adjusters, Blind—

Domestic.....₩ doz $3.00, 33⅓%
Excelsior....₩ doz $10.00.....50&10&2%
North's.....list net @ 10%
Zimmerman's—See Fasteners Blind.

Ammunition—See *Caps, Cartridges, Shells, &c*

Anvils—

Eagle Anvils, ₩ ℔ 9¢..... 15@15&5%
Peter Wright's.....11@11½%
Armitage's Mouse Hole.....10½@11¢
Am. Wrought, Horse shoe brand..11@11½¢
Trenton.....10@10½¢
Wilkinson's.....10½@11¢
Moore & Barnes Mfg. Co.....33⅓%

Anvil Vise and Drill—

Millers Falls Co., $18.00.....20%
Cheney Anvil and Vise.....25%
Allen Anvil and Vise, $3.00.....40&10%
Star.....45&5%

Apple Parers—See *Parers, Apple, &c.*

Augers and Bits—

Douglass Mfg. Co.
Wm. A. Ives & Co.
Humphreysville Mfg. Co.
French, Swift & Co. (F. H. Beecher)
P. S. & W. Co.
Rockford Bit Company
} 75%

Cook's, Douglass Mfg. Co.....55%
Cook's, N. H. Copper Co.....60%
Ives' Circular Lip.....60%
Patent Solid Head.....30%
C. E. Jennings & Co., No. 10, extension lip.....40%
C. E. Jennings & Co., No. 30.....60%
C. E. Jennings & Co., Auger Bits, ₩ set, 32⅝ quarters, No. 5, $5; No. 30, $3.50.25%
Lewis' Patent Single twist.....45%
Russell Jennings' Augers and Bits.25&10%
Imitation Jennings' Bits.....60@60&10%
Pugh's Black.....20%
Pugh's Jennings Pattern.....30%
Car Bits.....60@60&10
Car Bits, P. S. & W. Co.....60&10
Snell's Car Bits.....60%
L'Hommedieu Car Bits.....15&10%
Lorstner Pat. Auger Bits.....20%
Cincinnati Bell-Hangers' Bits.....30&10

Bit Stock Drills—

Morse Twist Drills.....50&10&5%
Standard.....50&10&5%
Cleveland.....50&10&5%
Syracuse, for metal.....50&10%
Syracuse, for wood (wood list).30&30&5%
Cincinnati, for wood.....30&10%
Cincinnati, for metal.....45&10%

Expansive Bits—

Clark's small, $18; large, $26..35@35&10%
Ives' No. 4, ₩ doz. $60.....40%
Swan's.....40%
Steer's, No. 1, $26; No. 2, $22.....35%
Stearns' No. 2, $48.....20%

Gimlet Bits—

Common.....₩ gross $2.75@$3.25
Diamond.....₩ doz $1.25....40&10%
Bee.....25@25&5%
Double Cut, Shepardson's.....45@45&10%
Double Cut, Ct. Valley Mfg. Co.....30&10%
Double Cut, Hartwell's, ₩ gro.....$5.25%
Double Cut, Douglass'.....40&10%
Double Cut, Ives.....60@60&10%

Hollow Augers—

Ives'
French, Swift & Co.
Douglass'
} 33⅓@33⅓ &10%

Bonney's Adjustable, ₩ doz $48.....50%
Stearns'.....20&10%
Ives' Expansive, each $4.50.....50&5%
Universal Expansive, each $4.50.....20%
Wood's.....25@25&10%
Cincinati Adjustable.....25&10%
Cincinnati Standard.....25&10%

Ship Augers and Bits—

L'Hommedieu's.....15&10@15&10&5%
Watrous'.....25@25&10%
Snell's.....15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits, 15&10@15&10&5%

Awl Hafts—See *Hafts, Awl.*

Awls—

Awls, Sewing, Common....₩ gr. 85¢@90¢
Awls, Should. Peg.....₩ gr. $1.50@$1.55
Awls, Pat. Peg.....₩ gr. 35¢@38¢
Awls, Shouldered Brad..₩ gr. $1.30@ 1.40
Awls, Handled Brad....₩ gr. $2.50@$3.00
Awls, Handled Scratch..₩ gr. $4.00@4.50
Awls, Socket Scratch..₩ doz. $1.10@$1.20

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—

	Plain.		Beveled.
First quality, best brands	$7.00	@	$7.50
First qual., other brands	6.50	@	7.00
	6.75	@	
Second quality	5.50		6.00

Axle Grease—See *Grease, Axle.*

Axles—

No. 1....3¼¢@4¼¢, No. 2, 5¢@6¢
Nos. 7 to 14.....60&10%
Nos. 15 to 18.....47½%
Nos. 19 to 22.....70%
} 3% cash

Concord Axles, loose collar.....4½¢@6¢
Concord Axles, solid collar.....6½¢@7¢
National Tubular Self Oiling.....33⅓@33⅓&5%

Bag Holders—See *Holders, Bag.*

Balances—

Spring Balances.....40%

No.	2000	20	30
Chatillon, ₩ doz	$0.80	0.95	1.75 net

Chatillon Straight Balances.....40%
Chatillon Circular Balances.....50&10%

Barb Wire.—See *Wire, Barb.*

Bars—

Crow—

Cast Steel.....₩ ℔ 3½¢
Iron, Steel Points.....₩ ℔ 3¢

Basins, Wash—

Standard Fiberware, No. 1, 10¼ inch, $2; 12-inch, $2.25 13¼-inch, $2.75; 15-inch, $3.25.

Beams, Scale—

Scale Beams, List Jan. 12, '82..50&10@50&10&5%
Chatillon's No. 1.....40%
Chatillon's No. 2.....50%
Custer's.....33⅓%

Beaters—

Egg—

Dover.....₩ doz $1.20@$1.50
Duplex (Standard Co.).....₩ doz $1.25
Rival (Standard Co.).....₩ doz $1.00
Duplex Extra Heavy (Standard Co.).....₩ doz. $3.50
Bryant's.....₩ gross $14.00
Double (H. & R. Mfg. Co.), ₩ gro., No. 0 $12.00; No. 1, $15.00; No. 2.....$36.00
Easy (H. & R. Mfg. Co.).....₩ gro $12.00
Triple (H. & R. Mfg. Co.).....₩ gro $16.50
Spiral.....₩ gro $4.25 @ $4.50
Improved Acme (H. & R. Mfg. Co.).....₩ gro. $9.00
Paine, Diehl & Co.'s .....₩ gro. $24.00
Silver & Co.....₩ doz $5.50

Culinary—

Keystone, P. D. & Co., Each, No. 1, $1; No. 2, $2.....20%

Bells—

Cow—

Common Wrought.....60&10%
Western, Sargent's list.....70&10%
Kentucky, "Star".....20&10%
Kentucky, Sargent's list.....70&10%
Kentucky Durham.....70&10%
Dodge, Genuine Kentucky....70@70&10%
Texas Star .....50&10@50&10&5%

Door—

Gong, Abbe's.....33⅓&10%
Gong, Yankee.....45&10%
Gong, Barton's .....40&10@50%
Crank, Taylor's.....25&10%
Crank, Brooks'.....50&10&2%
Crank, Cone's.....10%
Crank, Connel's.....20&10%
Lever, Sargent's.....60&10%
Lever, Taylor's Bronzed or Plated....net
Lever, Taylor's Japanned.....25&10%
Lever, R. & E. Mfg. Co.'s.....50&10&2%
Pull, Brook's.....50&10&2%

Electric -

Wollensak's.....20%
Bigelow & Dowse.....20%
Taylor's.....20%

Hand—

Light Brass.....70&10@70&10&5%
Extra Heavy.....70%
White.....70%
Silver Chime.....33⅓&10%
Globe Cone's Patent).....25&10@35%

Miscellaneous

Call.....45@50%
Farm Bells.....₩ ℔ 3¢&3½¢
Steel Alloy Church and School Bells..40%

Bellows—

Blacksmiths'.....60&10@60&10&5%
Molders'.....40&10@50%
Hand Bellows.....40&10@50%

Belting, Rubber—

Common Standard.....70@10@75&5%
Standard.....70&5@70&10%
Extra.....60&10@60&10&5%
N.Y.B.&P. Co., Carbon.....60%
N.Y.B.&P.Co., Diamond.....50%
N.Y.B.&P.Co., Para.....40%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—

Stoddard's Lightning Tire Upsetters..15%
Detroit Perfected Tire Bender.....15%
Green River Tire Benders and Upsetters.....20%

Bits—

Auger, Gimlet, Bit Stock Drills, &c., see *Augers and Bits.*

Bit Holders—See *Holders.*

Blind Adjusters—See *Adjusters, Blind.*

Blind Fasteners—See *Fasteners, Blind.*

Blind Staples—See *Staples, Blind.*

Blocks—

Cleveland Block Co., Mal. Iron..50@50&10%
Moore's Novelty, Mal. Iron.....50%
Sure Grip Steel Tackle Blocks 25%

Bolts—

Carriage, Machine, &c.—

Com. list June 10, '84.....75&10&5@80%
Genuine Eagle, Norway, list Oct. '84.....80@80&10%
Phila. pattern, list Oct. 7, '84..75&10@80%
R.B.&W., old list.....70%
Machine, list Jan. 1, 1890.....80&10%
Bolt Ends, list Jan. 1, 1890.....80&10%

Door and Shutter—

Cast Iron Barrel, Square, &c.....70&10%
Cast Iron Shutter Bolts.....70&10%
Cast Iron Chain (Sargent's list)....65&10%
Ives' Patent Door Bolts..60&10@60&10&5%
Wrought Barrel.....70@70&10%
Wrought Square.....70@70&10%
Wr't Shutter, all iron, Stanley's...60&10%
Wr't Shutter, Brass Knob.....40&10%
Wr't Shutter, Sargent's list.....60&10%
Wr't Sunk Flush, Sargent's list....60&10%
Wr't Sunk Flush, Stanley's list....50&10%
Wr't B. K.Flush, Co' mr.....55&10%

Stove and Plow—

Stove.....60&1c@60&10&5%
Plow.....60&10&50@60&1c&10%
R. B. & W., Plow.....55%

Tire—

Common, list Feb. 28, '83.....65@65&5%
Port Chester Bolt and Nut Company:
Empire list Feb. 28, '83.....65%
Keystone, Philadel., list Oct. '84.....80%
Norway, Phila., list Oct. '84.....75%
American Screw Company'
Norway, Phila., list Oct. 16, '84.....75%
Eagle, Phila., list Oct. 16, '84.....80%
Philadel., list Oct. 16, '84.....80%
Bay State, list Feb. 28, '83.....65%
R. B. & W., Philadel., list Oct. 16, '84...80%

Borers, Tap—

Common and Ring.....20&10%
Ives' Tap Borers.....33⅓&5%
Enterprise Mfg. Co.....20&10&30%
Clark's.....33⅓&35%

Borax—

Per ℔.....9½¢@10½¢

Boring Machines—See *Machines, Boring.*

Bow Pins—See *Pins, Bow.*

Boxes, Wagon—

Per ℔.....2¾¢

Braces—

American Bit Brace and Tool Co.
Nos. 10, 12, 20.....60&10%
Nos. 11, 21, 24, 27.....70&10%
Nos. 22, 23, 25.....60&10&5%
Nos. 13, 26, 30, 37.....70&10&5
Ball Braces, net.....$1.12 to $1.25
Amidon's,
Barker's Imp'd Plain.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet.....75&10@80%
Eclipse Ratchet.....60%
Globe Jawed.....40@40&10%
Corner Brace.....40@40&10%
Universal, 8 in., $2.10; 10 in.....$2.25
Buffalo Ball.....$1.10@$1.15
Barber's,
Nos. 10 to 16.....50&10%
Nos. 30 to 33.....50&10%
Nos. 40 to 63.....50&10@50&10&10%
Saxton's,
Barker's Imp. Polished.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet, Polished.....50&10@60%
Ratchet, Nickeled.....40&10@50%
Buffalo Ball.....net, $1.10@$1.15
Bartholomew's,
Nos. 25, 27 and 30.....50&10@60&5%
Nos. 117, 118, 119.....70@70&5%
Common Ball, American.....$1.00@$1.10
Fray's Genuine Spofford's..50&5@50&10%
Fray's Nos. 70 to 120, 81 to 123, 207 to 414 50&10%
Ives' New Haven Novelty.....70@70&5%
New Haven Ratchet.....60&5@60&10%
Barber Ratchet.....60&5@60&10%
Barber's.....60&5%
Spofford.....60&5@60&10%
Osgood's Ratchet.....40&10@50%
P. S. & W. Co., Peck's Patent.....60%

Brackets—

Shelf, plain,
Regular, list.....65@70%
Sargent's list.....60&10@70&10%
Shelf, fancy,
Sargent's list.....70@70&10%
Other makes at a wide range of prices.

Bright Wire Goods—See *Wire.*

Broilers—

Henis' Self-Basting.	Inch	9	10	9x11
	Per doz	$4.50	5.50	6.50

New Haven.....50%
Wire Goods Co.....65&10%
Morgan Odorless.....₩ doz. $12, 5o%

Buckets, Well—

Galvanized—

Hill's.....₩ doz. 12 qt. $4.25; 14 qt. $5.25
Iron Clad.....₩ doz. 14 qt. $4.25@4.50
Helwig's Flat Iron Band.....$3.75
Helwig's Wired Top.....₩ doz $4.00

Bull Rings—See *Rings, Bull.*

Butcher's Cleavers—See *Cleavers, Butchers'.*

Butts—

Brass—

Wrought Brass.....80@80&10%
Cast Brass, Tiebout's.....50%
Cast Brass, Fast.....33⅓&10%
Cast Brass, Loose Joint.....33⅓&10%

Cast Iron—

Fast Joint, Narrow.....50&10&5@60%
Fast Joint, Broad.....50&10@60%
Loose Joint
Loose Joint, Japanned
Loose Joint, Jap. with Acorns..
Parliament Butts
Mayer's Hinges
Loose Pin, Acorns
Loose Pin, Acorns, Japanned...
Loose Pin, Acorns, Japanned, Plated Tips..
} 75@75 &10%

Wrought Steel—

Fast Joint, Narrow
Fast Joint, Lt. Narrow
Fast Joint, Broad
Loose Joint, Broad
Table Butts, Back Flaps, &c.....
Inside Blind, Regular
Indide Blind, Light
Loose Pin
} 75@75 &10%

Bronzed Wrought Butts. .....50@50&10%

Calipers—See *Compasses.*

Calks, Toe—

Gautier, One Prong, Blunt.....5½@6¢
Burke's One Prong, Blunt.....5½@6¢
Burke's, Two Prong, Blunt.....7¼@8¢
Burke's, One Prong, Sharp.....6½@7¢

Can Openers—See *Openers, Can.*

Caps—

Percussion—

Hicks & Goldmark's and Union Metallic Cartridge Co.....₩ 1000
F. L. Waterproof, 1-10's.....35@37¢
E. B. Trimmed Edge, 1-10's.....47@50¢
E. B. Grnd. Edge, Cent. Fire, 1-10's.....47@50¢
Musket, Waterproof, 1-10's.....50@53¢
G. D.....27@30¢
S. B. Genuine Imported.....45¢
Eley's E. B.....50@58¢
Eley's D Waterproof, Central Fire..$1.60

Primers—

Berdan Primers, $1.00.....2%
B. L. Caps (Sturtevant Shells) $1.00....2%
All other Primers, $1.20.....2%

Cards—

Watson's Cotton, Wool, Horse and File, list January 28, 1891.....25%

Carpet Stretchers—See *Stretchers, Carpet.*

Carpet Sweepers—See *Sweepers, Carpet.*

Cartridges—

Rim Fire Cartridges.....50&5&2%
Rim Fire Military.....15&2%
Cent. Fire, Pistol and Rifle.....25&5&2%
Cent. Fire, Military and Sporting 15&5&2%
Blank Cartridges, except 22 and 32 cal., additional 10% to above discounts.
Blank Cartridges, 22 cal., $1.75.....2%
Blank Cartridges, 32 cal., $3.50.....2%
Primed Shells and Bullets.....15&5&2%
B. B. Caps, Round Ball, $1.75.....2%
B. B. Caps, Con. Ball, Swgd., $2.00.....2%

Casters—

Bed
Plate
Shallow Socket
Deep Socket
Yale Casters, low list
Yale, Gem
Martin's Patent (Phœnix).45&10&50&10%
Payson's Anti-friction.....70@70&10%
Payson's Truck.....60@60&10%
Giant Truck Casters.....35%
Stationary Truck Casters.....50&10%
Socket Truck Casters.....50@50&10%
Gwinner's Common Sense.....50%
Gwinner's Hercules.....50%
} Brass.....55@55&10%
} Others....60@60&10%

Cattle Leaders—See *Leaders, Cattle.*

Cement—

Victor Elastic.....5 ℔ pails ₩ ℔ 5¢

Chain—

Trace, Wagon and Fancy Chains, List revised Oct. 15, 1892..60@60&10%
American Coil, in cask lots,

3-16	¼	5-16	⅜	7-16	½	⅝	¾
$7.60	5.30	4.45	3.80	3.65	3.50	3.40	3.25

Less than cask lots, add¼@½¢ ₩ ℔
German Coil, list July 12, 1892..60@60&5%
German Halter Chain, list July 12, 1892. 60@60&5%
Covert Halter.....60&2%
Covert Traces.....35&2%
Covert Heel Chain.....50&2%
Oneida Halter Chain.....60@60&5%
Galvanized Pump Chain.....₩ ℔ 5½@6¢
Jack Chain, Iron.....80&10%
Jack Chain, Brass.....80%

Chalk—

White, case lots. ₩ gr 50¢; small lots.52¢
Red, case lots....₩ gr 67¢ small lots.72¢
Blue, case lots....₩ gr 75¢; small lots 80¢
See also Crayons

Chalk Lines—See *Lines.*

Chisels—

Socket Framing and Firmer

P. S. & W.
New Haven
Witherby
Mix
Ohio Tool Co. ..75&5@75&10&5%
Douglass ..75@75&5%
Buck Bros. ..30%
Merrill ..60&10@60&10&5%
L. & I. J. White ..30@30&5%

Tanged and Miscellaneous.

Tanged Firmers ..40&10@50%
Butchers' ..$4.75@$5.00
Spear & Jackson's ..$5 to £
Buck Bros ..30%
Cold Chisels, ₱ ℔ ..15@16%

Chucks—

Beach Pat. ..each, $8.00 ..20%
Morse's Adjustable, each, $7.00, 20@20&5%
Danbury ..each, $6.00, 30@30&5%
Syracuse, Balz Pat. ..25%
Graham Patent ..33⅓%
Skinner's Patent Chucks.
Combination Lathe Chucks ..33⅓%
Universal Lathe Chucks ..40%
Independent Lathe Chucks ..40%
Drill Chucks ..15%
Union Mfg. Co.
Victor ..$8.50, 25%
Combination ..40%
Universal ..40%
Independent ..40%

Churns—

Tiffin Union, each, 5 gal. $3.25; 7 gal., $3.75; 10 gal., $4.25.
McDermaid Star Barrel Churn, each 6 gal., $2.60; 10 gal., $2.75; 15 gal., $3.00; 20 gal., $3.25.

Clamps—

R. I. Tool Co.'s Wrought Iron ..25%
Adjustable, Cincinnati ..15&10%
Adjustable, Hammers ..15@15&5%
Adjustable, Stearn's ..30@30&10%
Stearn's Adjustable Cabinet and Corner ..30@30&10%
Cabinet, Sargent's ..70&10%
Carriage Makers', Sargent's ..75@75&5%
Carriage Makers', P., S. & W Co. ..40&10%
Eberhard Mfg. Co. ..40&5@40&10%
Warner's ..40&10@40&10&5%
Saw Clamps, see Vises, Saw Filers'.
Carpenter's, Cincinnati ..25&10%

Cleavers, Butchers'—

Bradley's ..25@30%
L. & I. J. White ..20&5%
Beatty's ..40@40&5%
New Haven Edge Tool Co.'s ..40%
P., S. & W ..33⅓&5@33⅓&10%
Foster Bros. ..30%
Schulte, Lohoff & Co. ..40@40&5%

Clips—

Norway, Axle, ¼ & 5-16 ..55&5&5%
2d grade Norway Axle, ¼ & 5-16 ..65&5%
Superior Axle Clips ..60%&5@70%
Norway Spring Bar Clips, 5-16 ..60&5&5%
Wrought Iron Felloe Clips ..₱ ℔, 5½¢
Steel Felloe Clips ..₱ ℔, 5¢
Baker Axle Clips ..25%

Cloth and Netting, Wire—See *Wire, &c.*

Cockeyes ..50%

Cocks Brass—

Hardware list ..60&2%

Coffee Mills—See *Mills, Coffee.*

Collars, Dog—

Chapman Mfg. Company ..50&10@60%
Medford Fancy Goods Co. ..40&10@50%
Embossed, Gilt, Pope & Steven's list, 30&10%
Leather, Pope & Steven's list ..40%
Brass, Pope & Steven's list ..40%

Combs, Curry—

Fitch's ..50&10@50&10&10%
Rubber, per doz., $10.00 ..25%
American Curry Comb Co. ..33⅓@40%
Kohler's Magic Oscillating. ₱ doz., $2.00
Kohler's Humane ..₱ doz., $1.75

Compasses, Dividers,&c.

Compasses, Calipers, Dividers. 70@70&10%
Bemis & Call Co.'s
Dividers ..65%
Compasses ..50&5%
Calipers, Wing and Inside or Outside. 50&5%
Calipers, Double ..60%
Calipers, Call's Patent Inside ..30%
Excelsior ..50%
J. Stevens & Co.'s ..25&10%
Starrett's
Spring Calipers and Dividers ..25&10%
Lock Calipers and Dividers ..25%
Combination Dividers ..25%

Coopers' Tools—See *Tools, Coopers'.*

Cord—

Sash—

Common ..₱ ℔, 10@11¢
Patent, good quality ..₱ ℔, 12@12½¢
White Cotton Braided, fair, ₱ ℔, 24½@25¢
Common Russia Sash ..₱ ℔, 12½@13¢
Patent Rusela Sash ..₱ ℔, 14¢
Cable Laid Italian Sash ..₱ ℔, 21@22¢
India Cable Laid Sash ..₱ ℔, 12¢
Silver Lake—
A quality, White, 50¢ ..25%
A quality, Drab, 55¢ ..25%
B quality, White, 30¢ ..10%
B quality, Drab, 35¢ ..10%
Sylvan Spring, Extra Braided, White, 34¢
Sylvan Spring, Extra Braided, Drab, 39¢
Semper Idem, Braided, White ..27@28¢
Egyptian, India Hemp, Braided ..26¢
Massachusetts, White ..29¢
Samson—
Braided, White Cotton ..₱ ℔, 37¢
Braided, Drab Cotton ..₱ ℔, 42¢
Braided, Italian Hemp ..₱ ℔, 40¢
Braided, Linen ..₱ ℔, 56¢
Tate's Cotton Braided, White, ₱ ℔, 28¢. 10%
Ossawan Mills—
Braided, Giant, White, ₱ ℔, 30¢ ..20%
Braided, Giant, Drab and Fancy, ₱ ℔, 35¢ ..10%
Braided, Crown, White, ₱ ℔, 50¢ ..50%
Braided, Crown, Drab and Fancy, ₱ ℔ 55¢ ..30%

Wire Picture—

Braided or Twisted ..80&5@80&15%

Corkscrews—See *Screws, Cork.*

Corn Knives and Cutters—See *Knives, Corn.*

Crackers, Nut—

Table (H. & B. Mfg. Co) ..40%
Blake's Pattern, ₱ doz., $2.00 ..10%
Turner & Seymour Mfg. Co. ..50%
Acme.
Japanned, ₱ gro., $30 ..50%
Nickel Plated, ₱ gro. $30 ..10%

Cradles—

Grain ..50&5&2@50&10&2%

Crayons—

White Crayons, ₱ gross ..7@8¢
D. M. Stewart Mfg. Co., Metal Workers', ₱ gross, $2.50 ..25%
D. M. Stewart Mfg. Co., Rolling Mill, ₱ gross, $2.50 ..25%
See also *Chalk.*

Crow Bars—See *Bars, Crow.*

Curry Combs—See *Combs, Curry.*

Curtain Pins—See *Pins, Curtain.*

Cutters—

Meat—

Dixon's, ₱ doz. ..40&5%
Nos. 1 2 3 4
$14.00 $17.00 $19.00 $30.00
Woodruff's, ₱ doz. ..40&5%
Nos. 100 150
$15.00 $18.00
Hale's Pattern, ₱ doz. ..70@70&5%
Nos. 11 12 13
$27.00 $33.00 $45.00
American ..30%
Nos. 1 2 3 4 B 5
Each ..$5 $7 $10 $25 $50 $60
Enterprise ..30%
Nos. 10 12 22 32 42
Each ..$3 $2.50 $4 $6 $15
Great American Meat Cutter ..30@30&5%
Nos. 112 116 118 120 122
Each ..$2.00 $2.75 $3.00 $3.50 $4.00
Miles' Challenge, ₱ doz. ..45@45&10%
Nos. 1 2 3
$22.00 $30.00 $40.00
Home No. 1, ₱ doz., $26.00 ..55&10%
Draw Cut, each:
Nos. 5 2 6 8
$50 $75 $80 $225 ..20@25%
Beef Shavers (Enterprise) ..30%
Little Giant (P. S. & W. Co.) ..50%
Chadborn's Smoked Beef Cutter, ₱ doz., $66.00

Tobacco

Champion ..20&10@30%
All Iron ..₱ doz., $4.25
Nashua Lock Co.'s. ₱ doz., $18.00, 50@55%
Wilson's ..55%
Sargent's ..₱ doz., $24.00, 55&10
Acme ..₱ doz., $20.00, 40%

Washer—

Smith's Pat. ..₱ doz., $12.00, 20&10&10%
Johnson's ..₱ doz., $11.00, 33⅓%
Penny's. ₱ doz., Pol. $14; Jap'd, $16, 55%
Appleton's ..₱ doz., $16.00, 60&10%
Bonney's ..30&10%
Cincinnati ..25&10%

Dampers, &c.—

Dampers, Buffalo ..40&10%
Buffalo Damper Clips ..40&10%
Crown Damper ..40%
Excelsior ..40&10%

Diggers, Post Hole, &c.—

Samson, ₱ doz., $34.00 ..25%
Fletcher Post Hole Augers, ₱ doz., $36.00, 20%
Eureka Diggers ..₱ doz., $11.50@$12.50
Leed's ..₱ doz., $8.00@$9.00
Vaughan's Post Hole Auger, ₱ doz., $8.50@$9.50
Kohler's Little Giant ..₱ doz., $18.00
Kohler's Hercules ..₱ doz., $14.00
Kohler's Invincible ..₱ doz., $12.00
Kohler's New Champion ..₱ doz., $8.00
Scheidler ..₱ doz., $18.00
Ryan's Post Hole Diggers. ₱ doz., $24.00
Cronk's Post Bars, ₱ doz., $60.00, 50&5@50&10%
Gibb's Post Hole Digger ..₱ doz., $15.00
Gibbs' National ..₱ doz., $12.00
Gibbs' Columbia ..₱ doz., $13.00
Gibbs' Imperial ..₱ doz., $7.50
Shimer's Hollow Handle. ₱ doz., $24.00, 50%

Dividers—See *Compasses.*

Dog Collars—See *Collars, Dog.*

Door Springs—See *Springs, Door.*

Drawers.

Money, ₱ doz ..$18@$20

Drawing Knives—See *Knives, Drawing.*

Drills and Drill Stocks—

Blacksmiths' ..each $1.75
Blacksmiths' Self-Feeding, each $7.50, 20%
Breast, P. S. & W ..40&10%
Breast, Wilson's ..30&5%
Breast, Millers Falls ..each $3.00, 25%
Breast, Bartholomew's ..each $2.50 25&10@40%
Ratchet, Merrill's ..20@20&5%
Ratchet, Ingersoll's ..25%
Ratchet, Parker's ..20@20&5%
Ratchet, Whitney's ..20&10%
Ratchet, Weston's ..20@25%
Ratchet, Moore's Triple Action ..25@30%
Ratchet, Curtis & Curtis ..30%
Whitneys Hand Drill, Plain, $11.00; Adjustable, $12.00 ..20&10%
Wilson's Drill Stocks ..10%
Automatic Boring Tools ..$1.75@$1.85
Chicopee Automatic Drill ..20&10%

Twist Drills—

Cleveland ..50&10&10%
Diamond, W. & B ..50&10&10%
Graham's Pat. Groove Shank ..50&10&10%
Morse ..50&10&10%
New Process ..50&10&10%
Standard ..50&10&10%
Syracuse (Meta list) ..50&10%

Drill Bits or Bit Stock Drills—See *Augers and Bits.*

Drill Chucks—See *Chucks.*

Dripping Pans—See *Pans, Dripping.*

Drivers, Screw—

Douglass Mfg. Co. ..20@20&10%
Disston's ..50%
Buck Bros. ..30%
Stanley R. & L. Co.'s
No. 64, Varnished Handles ..65&10%
No. 86 ..70&10%
Sargent & Co.'s
No. 1, Forged Blade ..60&10&10%
Nos. 20, 40 and 60 ..66⅔&10&10%
P. S. & W ..70%
Knapp & Cowles
No. 1 ..60&20@70%
No. 2 ..60&10&10@70&5%
No. 3 ..60&5@60&10%
Nos. 4 and 00, Acme and Ideal ..50&5@50&10&5%
Stearns' ..25&10&5%
Gay & Parsons ..35%
Champion ..25&10%
Clark's Pat. ..30@33⅓%
Crawford's Adjustable ..30%
Ellrich's Socket and Ratchet ..25@25&10%
Allard's Spiral, new list ..25%
Kolb's Common Sense ..₱ doz., $6.00, 25&10%
Syracuse Screw-Driver Bits ..30&30&5%
Screw Driver Bits, ..₱ doz., 50@75¢
Screw Driver Bitts, Parr's. ₱ gross, $6.25
Fray's Hol. H'dle Sets ..No. 3, $12.00, 45%
P. D. & Co.'s All Steel ..50%
Cincinnati ..25&10%
Brace Screw Drivers ..25&10%
Buck Bros.' Screw Driver Bits ..27½&5%
Goodell's Automatic ..50%
Mayhew's Black Handle ..50%
Mayhew's Monarch ..45&10%
C. T. Williamson Wire Novelty Co. ..50%

Egg Beaters—See *Beaters, Egg.*

Egg Poachers—See *Poachers, Egg.*

Electric Bell Sets—See *Bells, Electric.*

Emery—No. 4 to No. 54 to Flour, CF.

	46 gr.	150 gr.	F.FF.
Kegs, ₱ ℔	4½¢	5 ¢	2½¢
½ kegs, ₱ ℔	4¾¢	5¼¢	2¾¢
¼ kegs, ₱ ℔	5 ¢	5½¢	3 ¢
10-₱ cans, 10 In case	6 ¢	6¾¢	5 ¢
10-℔ cans, less than 10	10 ¢	10 ¢	7½¢

Enameled and Tinned Ware—See *Ware, Hollow.*

Escutcheon Pins—See *Pins, Escutcheon.*

Escutcheons—

Door Lock. ..Same dis. as Door Locks.
Brass Thread ..60@60&10%
Wood ..25%

Expanded Metal—

List No. 5.

Lathing ..10%
Fencing, Painted Sheets ..20%
Netting, Painted Sheets ..20%
Door Mats, Galvanized ..25%
Window Guards, Paneled ..15%
Tree Guards, Paneled ..15%

Extractors, Lemon Juice—See *Squeezers, Lemon.*

Fasteners, Blind—

Mackrell's, ₱ doz., $1.00 ..20@20&10%
Van Sand's Screw Pat, $15 ₱ gr. ..60&10%
Van Sand's Old Pat., $15 ₱ gr. ..55&10%
Austin & Eddy No. 2008 ..₱ gr., $9.00
Security Gravity ..₱ gr., $9.00
Zimmerman's ..50%

Faucets—

Fenn's ..40%
Bohren's Pat. Rubber Ball ..25%
Fenn's Cork Stops ..33⅓%
Star ..60%
Frary's Pat. Petroleum ..60%
B. & L. B. Co.
West's Lock, Open and Shut Key ..50%
Star, Metal Plug, new list ..40%
Lockport, Metal Plug, reduced list. 60%
Metallic Key, Leather Lined ..60&10@60&10&10%
Cork Lined ..70&5@70&10%
Burnside's Red Cedar ..50%
Burnside's Red Cedar, bbl. lots ..50&10%
John Sommers'
Peerless Best Block Tin Key ..40%
IXL, 1st quality, Cork Lined ..50%
Diamond Lock ..40%
Perfection, Fla. Red Cedar ..50%
Goodenough Cedar ..50%
Boss Metallic Key ..50%
Reliable Cork Lined ..60%
Western Pattern Cork Lined ..50%
Self Measuring
Enterprise, ₱ doz., $36.00 ..30%
Lane's ₱ doz., $36.00 ..25&10%
Victor ..₱ doz., $36.00 25&10%

Felloe Plates—See *Plates, Felloe.*

Fifth Wheels—

Derby and Cincinnati ..45&5%
Brewster ..50&5%

Files—

Domestic—

Nicholson Files, Rasps, &c. 60&10&5@60&10&10%
Nicholson (X.F.) Files ..25%
Nicholson's Royal Files (Seconds) ..75% (extra prices on certain sizes.)
American ..66⅔&10@66⅔&10&5%
G. & H. Barnett (Black Diamond) 60&10@60&10&5%
Arcade ..60&10&10@70%
Eagle ..60&10&10@70%
Other makers, best brands. .60&10&5@70%
Fair brands ..70@70&10%
Second quality ..75@75&10&5%
Heller's Horse Rasps ..50&7½@50&10%
McCaffrey's Horse Rasps ..50&10%
Chelsea Horse Rasps, Hand Cut. .50&10@50&10&5%
Arcade Horse Rasps. .60&10@60&10&5%

Imported—

Butcher ..Butcher's list, 20%
Stubs ..Stubs list, 25@30%

Fixtures, Grindstone—

Sargent's Patent ..70&10%
Reading Hardware Co. ..30&10%
P., S. & W. Co. ..50&10%

Fluting Machines—See *Machines, Fluting.*

Fluting Scissors—See *Scissors, Fluting.*

Fodder Squeezers—See *Squeezers, Fodder.*

Forks—

Hay, Manure, &c. Asso. List. 70@70&5&2%
Hay, Manure, &c., Phila. List, 60@60&10&2%
Plated, see Spoons.

Frames—

Saw—

White Vermont ..₱ gro., $9.00@$10.00
Red, Polished and Varnished. ..₱ doz., $1.50, 25%

Screen, Window and Door—

Porter's Pat. Window and Door Frame, 33⅓&10%
Warner's Screen Corner Irons. ..33⅓@33⅓&10%
Stearns' Frames and Corners. 25@25&10%
Cortland ..40@40&5

Freezers, Ice Cream—

White Mountain ..60@60&5%
Granite State ..65@65&5%
Arctic ..70@70&5%
American ..60%
Buffalo Champion ..65@65&5%
Shepard's Lightning ..65@65&5%
Gem ..65%
Blizzard ..70%
Double Action Crown ..60%
Crown ..60%
Star ..60%
Peerless ..60&10%
Giant ..60%
Zero ..60&10&10%
Boss and Pet ..60&10&10&10%
Keystone, P., D. & Co., each, $1.50 ..20%
Standard ..60@60&5%
Standard Double Action ..60@60&5%
Expert ..65@65&5%
Model ..60@60&5%
Confectioners' Machine ..50%

Fruit and Jelly Presses—See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Funnels—

Gersdorff's Perfection, Standard and Globe; Tin, 1 gro., 10%; 2 to 5 gro., 20%; 5 to 10 gro. ..30%
Copper, 1 to 6 doz., 15%; 6 to 12 doz., 20%; over 12 doz. ..25%

Furnaces, Soldering—

Burgess No. 3 Gem tin reservoir ..$7.00
Burgess No. 3 Gem, Copper reservoir. $8.50

Fuse—Dis. 12½@15%. ₱ 1000 ft.

Common Hemp Fuse, for dry ground. $2.70
Common Cotton Fuse, for dry ground 2.85
Single Taped Fuse, for wet ground.. 3.85
Double Taped Fuse, for very wet gr.. 4.80
Triple Taped Fuse, for very wet gr.. 5.90
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water. 12.00

Gates Molasses—

Stebbin's Pattern ..80@80&5%
Stebbin's Genuine ..60&10&10%
Stebbin's Tinned Ends ..40&10%
Chase's Hard Metal ..50&10%
Bush's ..20%
Lincoln's Pattern ..70@70&10%
Weed's ..20&10%
Boss, ₱ doz.:
No. 1, $7; No. 2, $8; No. 3, $9; No. 4, $10 ..60&10&10%

Gauges—

Marking, Mortise, &c ..60&10%
Starrett's Surface, Center and Scratch. 25&10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge ..20&10%
Hoague & Peck's Champion Gauge—
With Scale ..₱ doz., $5.00
Without Scale ..₱ doz., $4.00
Wire, Wheeler, Madden & Co. ..10%
Wire, Morse's ..25%
Wire, Brown & Sharpe's ..10@20%
Wire, P., S. & W. Co. ..10&10%

Gimlets—

Nail and Spike ..50&10&5%
Eureka Gimlets ..60&10%
Diamond Gimlets ..₱ gr $5.00
Double Cut, Shepardson's ..45@45&5%
Doub e Cut, Ives' ..60@60&5%
Double Cut, Douglass' ..40&10%

Glue—

I e Page's Liquid ..25@25&5%
Upton's Liquid ..35%
Improved Process ..25@25&5%
Dodd's Liquid Glue ..25@25&5%

Glue Pots—See *Pots, Glue.*

Grease, Axle—

Fraser's ..Keg ₱ ℔ 4¢, Pail ₱ ℔ 5¢
Fraser's, in boxes ..₱ gr $9.50
Dixon's Everlasting, in bxs. ..₱ doz 1 ℔ $1.20; 2 ℔ $2.00
Dixon's Everlasting. ..10-℔ pails, ea. 85¢
Lower grades, special brands, ₱ gr $5.50@$7.00
Axleine, tin boxes ..₱ gross $12.00
English Coach, wooden boxes ..₱ gross $8.50
English Coach, 5-℔ tin pails. ₱ doz. $3.50
Tiger, wooden boxes ..₱ gross $7.00
Tiger, 5-℔ tin pails ..₱ doz $2.85

Grindstones—

Small, less than car load lots at quarry ..₱ ton $9.00 @ $10.00
Family, regular list ..60%
Family, Cleveland Stone Co. ..20%

Grindstone Fixtures—See *Fixtures, Grindstone.*

Gun Powder—See *Powder.*

Hack Saws—See *Saws.*

Hafts, Awl—

Sewing, Brass Fer. ₱ gr ..$1.75
Pat. Sewing, Short. ₱ doz. ..45@50%
Pat. Sewing, Long ..₱ doz $1.20
Pat. Peg, Plain Top. ₱ doz. ..40@45%
Pat. Peg, Leather Top ..₱ doz 48@50%

Halters—

Covert's, Rope, Jute.....60&10&10&2%
Covert's Rope, 7-16-in., Jute.....70&2%
Covert's Rope, ½-in., Hemp.....50&2%
Covert's Adj. Rope Halters.....40&2%
Covert's Hemp Horse and Cattle Tie, 50&2%
Covert's Jute Horse Ties.....70&2%
Covert's Jute Cattle Ties.....70&10&2%
Covert's Adj. Web Halters.....35&5&2%
Covert's Saddlery Works Halters...33⅓%
Covert's Saddlery Works Horse and Cattle Ties.....33⅓%

Hammers—

Handled Hammers—

Maydole's, list Dec. 1, '85.....25&10@35%
Buffalo Hammer Co.
Humason & Beckley.....
Atha Tool Co.....
Verree.....
.....50&10%
C. Hammond & Son.....40&10@—%
Fayette R. Plumb.
Artisans' Choice, A. E. Nail.....40&10%
Regular Y. & P., A. E. Nail.....50%
Horseshoe Turning Hammers.....50%
Other Hammers.....50&10%
Cheney's Claw.....40&10%
Cheney's Machinist's & Riveting...50&5%
Hartford, Nail Hammers.....40&10%
Hartford, Machinists, &c.. 50&5&50&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Nelson Tool Works.....40&10%
Warner & Nobles, new list.....25&10
Peck, Stow & Wilcox.....40&10&50%
Sargent's.....40@40&10%

Heavy Hammers and Sledges—

3 ℔ and under...℔ @40¢ } 75&10@75&10
3 to 5 ℔.....℔ @36¢ } &5%
Over 5 ℔.....℔ @30¢ }
Wilkinson's Smiths.....10½¢@11¢℔ ℔

Handcuffs and Leg Irons

—See *Police Goods.*

Handles—

Cross-Cut Saw Handles—

Atkins' No. 1 Loop, ℔ pr., 28¢; No. 3, 18¢; No. 6, 15¢; No. 2 and No. 4, Reversible, 18¢.
Champion.....15%

Iron, Wrought or Cast—

Door or Thumb.

Nos.	0	1	2	3	4
Per doz.	$0.90	1.00	1.08	1.35	1.50

60&10&10%
Roggin's Latches.....℔ doz 30@35¢
Bronze Iron Drop Latches..℔ doz 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no plate, $0.88.....net
Barn Door, ℔ doz $1.40.....10&10%
Chest and Lifting.....70&70&10%

Wood—

Saw and Plane.....40&10@50%
Hammer, Hatchet, Axe, &c.....40@40&5%
Brad Awl.....℔ gr $2.00
Hickory Firmer Chisel, ass'd..℔ gr 4.50
Hickory Firmer Chisel, large..℔ gr 5.00
Apple Firmer Chisel, ass'd...℔ gr 5.00
Apple Firmer Chisel, large...℔ gr 6.00
Socket Firmer Chisel, ass'd..℔ gr 3.00
Socket Framing Chisel, ass'd.℔ gr 5.00
(40&10@50%)
J. B. Smith & Co.'s Pat File.....50%
File, assorted.....℔ gr 2.75 }
Auger, assorted.....℔ gr 5.00 } 50%
Auger, large.....℔ gr 7.00 }
Pat. Auger, Ives'.....30&10%
Pat. Auger, Douglass.....℔ set $1.25
Pat. Auger, Swan's.....℔ set $1.00
Hoe, Rake, shovel, &c.....60@60&5%

Hangers—

Barn Door, old patterns...60&10&10@70%
Barn Door, New England..60&10&10@70%
Samson Steel Anti-Friction.....56%
Orleans Steel.....55%
Hamilton Wrought Steel Track.....55%
U. S. Wood Track.....65%
Champion.....60&10%
Rider and Wooster, Medina [illegible] Co.'s list.....70%
Climax Anti-Friction.....55%
Climax Anti-Friction for Wood Track.55%
Zenith for Wood Track.....55%
Reed's Steel Arm.....50%
Challenge, Barn Door.....50%
Sterling.....50&10&10%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00.....50&2%
Cheritree.....50&10%
Kidder's.....40&10&50%
Boss.....60&10%
Best Anti-Friction.....60&10%
Duplex (Wood Track).....60&10&5%
Terry's Pat., ℔ doz pr. 4 in., $10.00; 5 in. $12.00.....50&10%
Terry's Steel Anti-Friction Leader.50&10%
Terry's Steel Anti-Friction Ideal..50&10%
Cronk's Patent, Steel Covered.....50&5%
Wood Track Iron Clad, ℔ ft. 10¢.....50 &15@60%
Carrier Steel Anti-Friction.....50&10%
Architect, ℔ set $6.00.....20%
Eclipse.....20&10%
Felix, ℔ set $4.50.....20%
Richards'.....30@30&10%
Lane's New Standard.....50@50&5%
Lane's Standard.....50&5@50&10%
Lane's Parlor.....40%
Ball Bearing Door Hanger.20&10@25&10%
Warner's Pat.....20&10@20&10&10%
Stearns' Anti-Friction..20&10@20&10&10%
Stearns' Challenge.....25&10@25&10&10%
Faultless.....40@40&5%
American, per set $6.00.....20&10%
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢.....40%
Paragon, Nos. 1, 2 and 3.....40&10%
Cincinnati.....25&10%
Paragon, Nos. 5, 5¼, 7 and 8.....20&10%
Crescent.....60@60&10%
Nickel, Steel, Nos. 0, $25; 1, $20; 2, $15. .....20&10%
Scranton Anti-Friction Single Strap.33⅓%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00.....45%
Star.....40&10@40&10&5%
May.....50&5@50&10%
Barry, $6.00.....40&10%
Interstate.....50%
Magic.....45%
Pendulum, Payson's.....40%
Moody.....45%

Harness Snaps—See *Snaps.*

Hatchets—

American Axe and Tool Co.
Blood's.....
Hunt's.....
Hurd's.....
Mann's.....
Peck's.....
Underhill's.....
} 40 & 10 @ 50&5%
Buffalo Hammer Co.....
Fayette R. Plumb.....
C. Hammond & Son.....
Kelly's.....
Sargent's & Co.....
P., S. & W. Co.....
Ten Eyck Edge Tool Co.....
Collins.....10%
Schulte, Lohoff & Co.....50@50&5%

Hay and Straw Knives—

See *Knives.*

Hinges—

Blind Hinges—

Parker.....75&2%
Huffer.....50%
Clark's, Nos. 1, 3, 5, 40 and 50..80@80&5%
Clark's Mortise Gravity.....50%
Sargent's, Nos. 1, 3, 5, 11, 12, 13.75@75&10%
Reading's Gravity.....75&10@75&10&5%
Shepard's.
Noiseless.....75&10%
Niagara.....80%
Buffalo.....80%
Clark's Genuine Pattern.....80%
O. S., Lull & Porter.....75&10%
Acme, Lull & Porter.....75%
Queen City Reversible....70&10&5&75%
Clark's, Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3.....75&10&2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%

Gate Hinges—

Western.....℔ doz $4.20, 60@60&10%
N. E.....℔ doz $7.80, 60@60&10%
N. E. Reversible ℔ doz..$5.60, 6 @60&10%
Clark's, Nos. 1 2, 3.....60&10&5%
N. Y. State.....℔ doz $4.90,60@60&10%
Automatic.....℔ doz $12.50, 50%
Shepard's.....60&10&5%

Spring Hinges—

Geer's Spring and Blank Butts....40%
Union Spring Hinge Co.'s list, March, 1886.....20%
Barker's Double Acting.....25%
Union Mfg. Co.....25%
Bommer's.....30%
Buckman's.....15@20%
Chicago.....30%
Bardsley's Patent.....40%
Acme.....30%
U. S.....25&10%
Empire and Crown.....20%
Hero and Monarch.....55%
American, Gem and Star.....20%
Oxford.....20%
Wiles'.....10%
Devore's.....40%
Rex.....40%
Royal.....66⅔%
Reliable.....60%
Champion.....60%
No. 10 Matchless.....50&10%
No. 25 Unbreakable.....50&10%
J. G. C. Covered, ℔ gro., $30.....50&5%
Samson.....60@60&2½%
Extra 5@10% often given.

Wrought Iron Hinges—

List February 14, 1891.
Strap and T.....50&10@50&10&5%
Corrugated Strap and T.....50&10&5%
Screw Hook and Strap... { 6 to 12 in., ℔ ℔.. 4¢ / 14 to 20 in., ℔ ℔..3½¢ / 22 to 36 in., ℔ ℔.. 3¢
Screw Hook and Eye.... { ⅜ in., ℔ ℔ 7¾¢ / ½ in., ℔ ℔ 5¾¢ / ⅝ in., ℔ ℔ 4¾¢
Rolled Blind Hinges, Nos. 32 and 34 .....50&10%
Rolled Blind Hinges, Nos. 232 and 234 .....55&10%
Rolled Plate.....70&10%
Rolled Raised.....70&10%
Plate Hinges { 8, 10 & 12 in., ℔ ℔.....5¢ / "Providence" { over 12 in. ℔ ℔.....4¢

Hoes—

Eye—

D. & H. Scovil.....20%
Lane's Crescent, Planters' Pattern.45&5%
Lane's Razor Blade, Scovil Pattern...30%
Maynard, S. & O. Pat.....45&5%
Sandusky Tool Co., S. & O. Pat } 70@70& 5%
Am. Axe and Tool Co., S. & O. Pat. }
Chattanooga Tool Co., S. & O. Pat..60& 5&60&10%
Grub.....60&10%

Handled—

Garden, Mortar, &c... .....70@70&5&2%
Planter's, Cotton, &c.....70@70&5&2%
Warren Hoe.....60@60&5%
Magic.....℔ doz $4.00

Hog Rings and Ringers—

See *Rings and Ringers—*

Hoisting Apparatus—

See *Machines, Hoisting.*

Hollow-Ware—

See *Ware, Hollow.*

Holders—

Bag—

Sprengle's Pat.... .....℔ doz $18....60%

Bit—

Extension.
Barber's, ℔ doz $15.00.....40@40&10%
Ives, ℔ doz $20.00.....60&5@60&10%
Diagonal.....℔ doz $24.00, 40%
Angular.....℔ doz $24.00, 40&5%

File and Tool—

Balz Pat.....℔ doz $4.00, 25%
Nicholson File Holders.....20%
Dick's Tool Holder.....20%

Hooks—

Cast Iron—

Bird Cage, Sargent's List.... }
Bird Cage, Reading..... } 60&10&10%
Clothes Line, Sargent's list.. }
Clothes Line, Reading list 60&10@60&10&10%
Ceiling, Sargent's list.....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. 55&10@60&10%
Coat and Hat, Reading. 50&10@50&10&10%

Wrought Iron—

Cotton.....℔ doz $1.25
Cotton Pat. (N. Y. Mallet and Handle W'ks.....30%
Tassel and Picture, T. & S. Mfg.Co....50%
Wrought Staples, Hooks, &c. See Wrought Goods

Wire—

Wire Coat and Hat, Gem, list April, 1886.....60@60&10
Wire Coat and Hat, Miles, list April, 1886.....50@50&10%
Indestructible Coat and Hat...45@45&5%
Wire Coat and Hat, Standard..60@60&10%
Handy Hat and Coat.....50&10@60%
Steady Ceiling Hooks.....50&10@60%
Belt.....80&15@80&20%
Atlas, Coat and Hat.....60@60&10%
Williamson's Bird Cage Hooks, List April, 1892.....40%
Bright Wire Goods—See Wire.

Miscellaneous—

Grass, No. 2, $2.00; No. 3, $2.10; No. 4, $2.25
Nolin's Grass.....℔ doz $2.25
Bush.....55@60%
Whiffletree—Patent.....55%
Hooks and Eyes—Malleable Iron. 70&70&10%
Hooks and Eyes—Brass.....60&10&10%
Fish Hooks, American.....50%
Bench Hooks—See Bench Stops.

Horse Nails—See *Nails, Horse*

Horse Shoes—

See *Shoes, Horse.*

Hose, Rubber—

Competition.....75@75&10&5%
Standard.....60&10&10&70&10%
Extra.....60@60&10%
N. Y. B. & P. Co., Para.....25&5%
N. Y. B. & P. Co., Extra.....40@40&5%
N. Y. B. & P. Co., Dundee.....50&10@60%

Huskers—

Blair's Adjustable.....℔ gr $8.00
Blair's Adjustable Clipper.....℔ gr 7.00
Hubbard's Solid Steel.....℔ gr 4.50

Indurated Fiber Ware—

See *Ware, Indurated Fiber.*

Irons.

Sad—

From 4 to 10, at factory....℔ 100 ℔, $2.30@$2.40
Self-Heating.....℔ doz $8.00
Self-Heating Tailors'.....℔ doz $18.00
Mrs. Pott's Irons, list June 1, 1890....30%
Enterprise Star Irons.....30%
Crown.....60&10@60&10&5%
Ideal Irons, new list...50&10@50&10&10%
Salamander Irons.....25%
B. B. Sad Irons, ℔ ℔.....3@3¼¢
Combined Fluter and Sad Iron, ℔ doz, $15.00.....15%
Fox Reversible Self-Fluter, ℔ doz..$24.00
Chinese Laundry (N.E.Butt Co.).8½¢, 15%
New England.....5¢, 15%
Mahony's Troy Pol. Irons.....25%
Sensible, list Jan. 91.....50&10&5%
Sensible Tailor's Irons.....33⅓%
National Self-Heating.....30%

Soldering—

Soldering Coppers .....℔ ℔ 19@21¢
Covert's Adjustable, list Jan. 1, 1886, 35&2%

Pinking—

Pinking Irons, ℔ doz.; 55@60¢

Jack Screws—See *Screws.*

Jacks, Wagon—

Daisy.....33⅓%
Victor.....33⅓%
Lockport.....40%

Kettles—

Brass, Spun, Plain, list Jan. 1, '91..25&5%
Brass, Spun, Pld.W.M.list Jan. 1, '91..20%
Enameled and Tea—See *Ware, Hollow.*

Keys—

Lock, Ass'n list Dec. 30, 1886.50&10@ 60&5%
Eagle, Cabinet, &c.....33⅓&2%
Hotchkiss' Brass Blanks.....40%
Hotchkiss' Copper and Tinned.....40%
Hotchkiss' Pad. and Cab.....35%
Ratchet Bed Keys.....℔ doz. $4.00, 15%
Wollensak Tinned.....50&10%

Knife Sharpeners—

See *Sharpeners, Knife.*

Knives—

Butcher, Shoe, &c.

Wilson's Butcher Knives, List Dec 8, 1890.....25%
Ames' Butcher Knives.....25%
Foster Bros.' Butcher, &c.....40%
Jordan's Aa A1 Butchers', list.....net
Nichols' Butcher Knives.....40&10%
W. W. Wilson, Butcher, 6 in.. $2.00; 7 in., $2.70; 8 in., $3.80, &c.
Ames' Shoe Knives.....20@25%
Ames' Bread Knives, ℔ doz $1.50, 15@20%
Moran's Shoe and Bread.....20@20&10%
Hay and Straw—See Hay Knives.
Table and Pocket—See Cutlery.

Corn—

Bradley's.....10%
Wadsworth's.....25@25&10%

Drawing—

Witherby..... }
P. S. & W..... } ...75@75&10&5%
Mix..... }
New Haven..... }
Merrill.....80&10@80&10&5%
Douglass.....75&75@5%
Watrous .....15&10@25%
L. & I. J. White.....20&5%
Bradley's.....35%
Adjustable Handle.....25@33⅓%
Wilkinson's Folding.....25@25&7%

Hay and Straw—

Lightning, from jobbers....$8.00@$9.00
Wadsworth's.....40&7½@40&10%
Carter's Needle...℔ doz. $11.00@$11.50
Heath's.....℔ doz. $13.00@$13.50
Nolin's Hay.. .....℔ doz. $7.00@$8.00

Mincing—

Am. (2d quality), ℔ gr., 1 blade, $7; 2 blades, $12; 3 blades, $18.....net
Lothrop's.....20&10%
Smith's, ℔ doz., Single, $2; Double $3 45@50%
Knapp & Cowles.....50&10@60%
Buffalo Adjustable.....℔ doz. $3.00, 25%
Buffalo Double Adjustable.. ℔ doz. $3.00, 25%

Knobs—

Door, Mineral .....60@65%
Door, Por. Jap'd.....70@75%
Door, Por. Nickel.....$2.00@$2.25
Door, Por. Plated Nicke..l.....$2.00@$2.25
Drawer, Porcelain....60&10@60&10&10%
Hemacite Door Knobs.....40&10@50%
Yale & Towne Wood, list Dec., 1885...40%
Furniture Plain.....75¢ gro inch, 10%
Furniture, Wood Screws.....25&10%
Base, Rubber Tip.....70&10&5%
Picture, Judd's.....60&10&10@70%
Picture, Sargent's.....70&10%
Picture, Hemacite.....35&5%
Shutter, Porcelain.....65&1%
Carriage, Jap .....℔ gro 80¢, 60&10%
Bardsley's Wood Door, Shutter, &c...40%

Ladies—

Melting, Sargents'..... .....60@60&5%
Melting, Reading.....35&10%
Melting, Monroe's Pat...℔ doz $4.00, 40%
Melting, P., S. & W.....35&10@40%
Melting, Warner's..... .....30%

Lanterns—

Tubular—

Regular, with Guard.....℔ doz $3.50
O. K., with Guard.....℔ doz $3.75
Side Lift, with Guard.....℔ doz $4.00
Square Lift, with Guard.....℔ doz $4.25
Anti-Friction, with Guard....℔ doz $4.50
Brass Plated, Sq. Lift, Guard.℔ doz $5.50
Cop. Plated, Sq. Lift, Guard..℔ doz $5.50

Bull's Eye Police—

2¾-inch regular..... ..℔ doz $3.60
3-inch regular.....℔ doz $3.90
2¾-inch flash light.....℔ doz $4.00
3-inch flash light..... ....℔ doz $4.50

Lawn Mowers—

See *Mowers, Lawn.*

Leaders, Cattle—

Humason, Beckley & Co.'s.....70%
Sargent's.....70&10@70&10&10%
Hotchkiss.....30%
Peck, Stow & W. Co.....60&10%

Lemon Squeezers—

See *Squeezers, Lemon.*

Lifters, Transom—

Wollensak's:
Class 3 and 4, Bronzed Iron..... ....50%
Class 3 and 4, Bronze Metal.....25%
Class 3 and 4, Brass.. .....35%
Skylight Lifters.....50%
Crown, Eagle and Shield 50%
Reiher's, list Feb. 20, 1891
Bronzed Iron Rods.....50&10&10&2%
Brass, Real Bronze or Nickel Plate..30%
Excelsior.....50&10&2%
Shaw's.. .....50&10%
Payson's:
Universal.....60%
Solid Grip.....60&10@60&10&10%
Imperial.....50&10%

Lines—

Cotton and Linen Fish, Draper's.....50%
Draper's and Tate's Chalk.....60%
Draper's Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25.....25%
Cotton Chalk.....55%
Samson Cotton, No. 4, $2; No. 4½, $2.50; 10%
Silver Lake, Braided, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ℔ gro.....25%
Mason's Linen, No. 3½, $1.50; No. 4, $2.00; No 4½, $2.50.
Mason's Colored Cotton.....45%
Wire Clothes..Nos. 18 19 20
100 ft..... $3.50 $3.00 $2.50
Ventilator Cord, Samson Braided, White or Drab Cotton..℔ doz $7.50..20%
Ossawan Mills, Chalk, Twisted, 60%; Chalk, Soft Braided, 50% Chalk, Braided, 25%.

Links, Open—

Terry's—per gro.:

Nos.	1	2	3	4
	$6.00	8.00	12.00	16.00

Locks, &c.—

Cabinet—

Eagle, Gaylord Parker and Corbin... } List March, '84, rev. Jan. 1, '85.33⅓&2%
Deitz, Nos. 36 to 39.....40%
Deitz, Nos. 51 to 63.....40&10%
Deitz, Nos. 87 to 96.....30%
Stoddard Lock Co.....30@33⅓%
"Champion" Night Latches.....40%
Barnes Mfg. Co.....40@40&10%
Eagle and Corbin Trunk.....25&10%
"Champion" Cab. and Combin...33⅓%
Yale.....net prices
Romer's.....25%

Door, Locks, Latches, &c.—

R. & E. Mfg. Co., list Mar. 20, 1889. } 65&10@70% Much
Mallory, Wheeler & Co., list July, '88. } lower net prices often made.
Sargent & Co., List Aug. 1, '88 }
Branford Lock Works .... }

Brittan, Graham & Mathes, list Jan. 1890.....60&10&10%
Perkins' Burglar Proof.....60&25%
Plate.....33⅓&2%
Barnes Mfg. Co.....40@40&10%
Yale.....net prices
Deitz Flat Key.....30%
L. & C. Round Key Latches.....30&10%
L. & C. Flat Key Latches.....33⅓&10%
Romer's Night Latches.....15%
Brooklyn Latches.....50&10%
Shepardson or U. S.....35%
Seed's N. Y. Hasp Lock.....25%

Padlocks—

List June'10, 1891.....50&2%
Norwich Lock Mfg. Co., old list....70&2%
Yale Lock Mfg. Co.'s.....net prices
Eagle.....40%
Eureka, Eagle Lock Co.....40&2%
Romer's Nos. 0 to 91.....30%
Romer's Scandinavian, &c., Nos. 100 to 500.....15%
A. E. Deitz.....40%
Champion Padlocks.....40%
Hotchkiss.....30%
Star.....60%
Horseshoe.....₱ doz $9, 40@40&10%
Barnes Mfg. Co.....40@40&10%
Nock's.....30%
Brown's Pat.....25%
Scandinavian.....90&40%
E. T. Fraim's Keystone Scandinavian, Nos. 119, 120, 130 and 140.....90&10%
Other Nos.....65
Ames Sword Co. up to No. 150.....40%
Ames Sword Co. above No. 150.....50%
Slaymaker, Barry & Co.
No. 1010 line.....85&5%
No. 41 line.....45&10%
No. 61 line.....50&5%
No. 21 line.....75%

Sash, &c.—

Clark's No. 1, $10; No. 2, $8 ₱ gr.....33⅓%
Ferguson's.....33⅓%
Victor.....60&10&2%
Walker's.....10%
Attwell Mfg. Co.....25&33⅓%
Reading.....60%&10@60%&10&10%
Hammond's Window Springs.....40%
Common Sense, Jap'd, Cop'd and Br'zed.....₱ gr $4.00
Common Sense, Nickel Plated. ₱ gr $10.00
Universal.....30%
Kempshall's Gravity.....60%
Kempshall's Model.....60@60&10%
Corbin's Daisy, list Feb. 15, 1886.....70%
Payson's Perfect.....60&10&10%
Hugunin's Sash Balances.....25&5&2%
Hugunin's New Sash Locks.....25&5&2%
Stoddard's "Practical".....10%
Ives' Patent.....60&10@60&10&5%
Fish (Llesche's pat.), No. 100, ₱ gr., $6; No. 105, ₱ gr., $10.....50%
Davis, Bronze, Barnes Mfg. Co.....70%
Champion Safety, list January, 1890..40%
Security.....70%
Giant, list Jan., 1892.....70&5%
Wolcott's.....60&10&5%
Monarch.....50%

Lumber Tools—

See *Tools, Lumber.*

Lustro—

Four-ounce bottles.....₱ doz, $1.75; ₱ gross.....$17.00

Machines.

Boring—

	Without Augers.	Upright.	Angular.
Douglas	$5.50	$6.75	50%
Snell's, Rice's Pat.	5.50	6.75	40&10&10%
Jennings'	5.50	6.75	45&45&10%
Other Machines	2.35	2.75	
Phillips' Patent with Augur.	7.00	7.50	
Miller's Falls	7.50		25%

Fluting—

Knox, 4¼-inch Rolls.....$3.25 each } 35%
Knox, 6-inch Rolls.....$3.60 each }
Eagle, 3¼-inch Rolls, $2.15.....35%
Eagle, 5¼-inch Rolls, $2.85.....35%
Crown, 4¼ in., $3.50; 6 in., $4.00; 8 in., $6.50 each.....35%
Crown Jewel, 6 in.....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each.....35%
Domestic Fluter.....each, $1.50
Geneva Hand Fluter, White Metal, ₱ doz $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; 2, $12.50; 3, $10.00.....30%
Shepard Hand Fluter, No. 85, per doz $15.30.....40%
Shepard Hand Fluter, No. 110, ₱ doz $11.00.....40%
Shepard Hand Fluter No. 95, ₱ doz $8.00.....40%
Clark's Hand Fluter, ₱ doz $15.00.....35%
Combined Fluter and Sad Iron, ₱ doz $15.00.....30%
Buffalo, ₱ doz $10.00.....10%

Hoisting—

Moore s Hand Hoist, with Lock Brake.20%
Moore's Differential Pulley Block.....40%
Energy's Mfg. Co.'s.....25%
Sure Grip Steel Tackle Blocks.....25%

Washing—

Anthony Wayne, ₱ doz, No. 1, $51; No. 2, $45; No. 3, $42.
Western Star, ₱ doz, No. 2, $45; No. 2 $48.
Weisell.....₱ doz $54.00
Fair and Square.....₱ doz $42.00

Mallets—

Hickory.....20&10@20&10&10%
Lignumvitæ.....20&10@20&10&10%
B. & L. Block Co., Hickory & L. V. 30@30&10%

Mattocks—Regular list, 60&10@60&10&5%

Measures—

tandard Fiberware, No. 1, peck ₱ dozen, $4; ½-peck, $3.50.

Meat Cutters—

See *Cutters, Meat.*

Menders, Harness—

Per doz.....$2.00

Mills—

Coffee—

Box and Side, List, Jan. 1, 1888.60@60&10%
Net prices are often made which are lower than above discount.
American, Enterprise Mfg. Co.....30%
The Swift, Lane Bros.....30%

Mincing Knives—

See *Knives, Mincing.*

Molasses Gates—

See *Gates, Molasses.*

Money Drawers—

See *Drawers, Money.*

Mowers, Lawn—

Philadelphia.....60&10%
Pennsylvania and Continental.....60%
New Model and Excelsior.....60@60&10%
Other Machines.....60&10&10&75%

Muzzles—

Safety.....₱ doz, $3.00, 25%

Nails.—

Cut and Wire. See Trade Report.
Wire Nails, Papered.
Association list, May 1, '92.80&10&10&5%
Tack Mfrs.' list.....70&5@70&10%
Wire Nails, Standard Penny. Card, Apr. 11, '92 base.....$1.80@$1.85
Hungarian Nails, Finishing, &c. See *Tacks.*

Horse—

	Nos. 6	7	8	9	10	
American	85¢	85¢	85¢	85¢	85¢	.net
Ausable	28¢	26¢	25¢	24¢	23¢	40&5&5&2%
Clinton, Fin.	19¢	17¢	16¢	15¢	14¢	.30&10%
Essex	28¢	26¢	25¢	24¢	23¢	40&10&5&250&5%
Lyra	19¢	17¢	16¢	15¢	14¢	.40&10%
Snowden	19¢	17¢	16¢	15¢	14¢	.40&10%
Vulcan	23¢	21¢	20¢	19¢	18¢	..25%
Northwest'n.	25¢	23¢	22¢	21¢	20¢	25@25&5%
A. C.	25¢	23¢	22¢	21¢	21¢	25&10@33⅓&5%
C. B. K.	25¢	23¢	22¢	21¢	21¢	33⅓@33⅓&10%
Maud S.	25¢	23¢	22¢	21¢	21¢	40&10&5%
Champlain	28¢	26¢	25¢	24¢	23¢	40&5&5&2%
Saranac	23¢	21¢	20¢	19¢	18¢	...40&5%
Champion	25¢	23¢	22¢	21¢	20¢	10&10&10%
Capewell	19¢	18¢	17¢	16¢	16¢	..10&5%
Anchor	23¢	21¢	20¢	19¢	18¢	.....35%
Western	23¢	21¢	20¢	19¢	18¢	.....50%
Empire Bronzed						13@14 ₱ ℔

Picture—

Brass Head, Sargent's list.....60@60&10%
Brass Head, Combination list.....50&10%
Porcelain Head, Sargent's list.50&10&10%
Porcelain Head, Combination list.40&10%
Niles' Patent.....40%

Nail Pullers—See *Pullers, Nail.*

Nail Sets—See *Sets, Nail.*

Nut Crackers—

See *Crackers, Nut.*

Nuts—List Dec. 18, 1889.

	Square.	Hex.
Hot Pressed	5.40¢	6.00¢ off list
Cold Punched	5.00¢	5.10¢ off list

In packages of 100 ℔, add 1-10¢ ₱ ℔, net; in packages less than 100 ℔, add ½¢ ₱ ℔, net.

Oakum—

Best or Government. .....₱ ℔ 6¾@7¼¢
U. S. Navy.....₱ ℔ 5¾@6¢
Navy.....₱ ℔ 5¢@5¼¢

Oilers—

Zinc and Tin.....65&10@70&5%
Brass and Copper.....50&10&50&10&5%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₱ doz. 10@10&5%
Malleable, Hammers' Old Pattern, same list.....45%
Prior's Pat. or "Paragon" Zinc. 60&10&10%
Prior s Pat. or "Paragon" Brass.....50%
Olmstead's Tin and Zinc.....60%
Olmstead's Brass and Copper.....50%
Broughton's Zinc.....60%
Broughton's Brass.....50%
Gem, P., D. & Co.....₱ gro. $2
Steel, Draper & Williams.....50%

Openers, Can—

Messenger's Comet.....₱ doz $3.00, 25%
American.....₱ gross $2.75@$3.00
Duplex.....₱ doz 25¢, 15@20%
Lyman's.....₱ doz $3.75, 20%
No. 4, French.....₱ doz $2.25, 55@60%
No. 5, Iron Handle.....₱ gr $6.00, 45&50%
Eureka.....₱ doz $2.50, 10%
Sardine Scissors.....₱ doz $2.75&3.00
Star.....₱ doz $2.75
Sprague, No. 1, $2.00; 2, $2.25; 3, $2.50; 66⅔&70%
Excelsior, No. 1 $2.50; No. 2, $1.50....40%
World's Best, ₱ gross, No. 1, $12.00; No. 2, $24.00; No. 3, $36.00.....50&10%
Universal, ₱ doz $3.00.....55&5%
Domestic, ₱ doz $2.00.....45%
Champion, ₱ doz $2.00.....50%

Packing, Steam—

Rubber—

Standard.....70@70&10%
Extra.....60@60&5%
N. Y. B. & P. Co., Standard.....50%
N. Y. B. & P. Co., Empire.....60%
N. Y. B. & P. Co., Salamander.....25%
Jenkins' Standard, ₱ ℔ 80¢....25@25&5%

Miscellaneous—

American Packing.....10@11¢ ₱ ℔
Russia Packing.....14¢ ₱ ℔
Italian Packing.....13@14¢ ₱ ℔
Cotton Packing.....15@17¢ ₱ ℔
Jute.....7¢@8¢ ₱ ℔

Pails—

Galvanized—

	Quarts	10	12	14
Hill's Light Weight, ₱ doz.	$2.75	3.00	3.25	
Hill's Heavy Weight, ₱ dz.	3.00	3.25	3.75	
Heiwig's	2.50	2.75	3.00	
Sidney Shepard & Co.	2.35	2.85	3.05	
Iron Clad	2.50	2.75	3.00	
Fire Buckets	2.75	3.25	3.50	

Buckets—See Well Buckets.

Indurated Fiber Ware—25%

Star Pails, 12 qt.....₱ doz $5.40
Stable and Milk, 14 bt.....₱ doz $6.00
Fire Pails, deep.....₱ doz $5.40
Fire Pails, round bottom.....₱ doz $7.80

Standard Fiber Ware—

	Plain.	Deer'd
Water Pails, 12 qt., ₱ doz.	$4.00	$4.50
Dairy Pails, 14 qt., ₱ doz.	4.50	5.00
Fire Pails, No. 1, 12 qt., ₱ doz	4.50	
Fire Pails, No. 2, 14 qt., ₱ doz	5.00	
Sugar Pails	6.00	6.50
Horse Pails	5.00	
Buggy Pails	4.00	
Slop Jars (bal. trap)	8.00	9.00
Chamber Pails, 14 qt	6.50	7.50

Pans—

Dripping—

Small sizes.....₱ ℔ 6¼¢
Large sizes.....₱ ℔ 5¾¢
Silver & Co. (Covered).....40%

Fry—

Standard List: No.	0	1	2	3	4
₱ doz.	$3.00	$3.75	$4.25	4.75	$5.25
No.	5	6	7	8	
₱ doz.	$6.00	$7.00	$8.00	$9.00	

Polished, regular goods.....75@75&10%
Acme Fry Pans.....60%

Dust—

Steel Edge, No. 1.....₱ doz $1.75

Paper and Cloth—

Sand and Emery—

List April 19, 1886.....50&10@50&10&5%
Sibley's Emery and Crocus Cloth.....30%

Parers—

Apple—

Advance.....₱ doz $4.75
Baldwin.....₱ doz 5.25
Bonanza.....each 5.00
Daisy.....₱ doz 4.00
Dandy.....each 7.50
Eclipse.....₱ doz 4.25
Eureka, 1888.....each 16.00
Family Bay State.....₱ doz 12.00
Favorite.....₱ doz 5.00
Gold Medal.....₱ doz 4.00
Ideal.....₱ doz 4.00
Improved Bay State....₱ doz 27.00&30.00
Little Star.....₱ doz 4.50
Monarch.....₱ doz 13.50
New Lightning.....₱ doz 5.50
Oriole.....₱ doz 4.00
Penn.....₱ doz 4.00
Perfection.....₱ doz 4.00
Pomona.....₱ doz 4.00
Rocking Table.....₱ doz 6.00
Turn Table.....₱ doz 4.50
Victor.....₱ doz 13.50
Waverly.....₱ doz 4.00
White Mountain.....₱ doz 4.00
72.....₱ doz 4.25
78.....₱ doz 7.00

Potato—

White Mountain.....₱ doz $4.50
Antrim Combination.....₱ doz $5.50
Hosier.....₱ doz $13.50
Saratoga.....₱ doz $5.50

Pencils—

Faber's Carpenters'.....high list 50%
Faber's Round Gilt.....₱ gro $5.25
Dixon's Lead.....₱ gro $4.50
Dixon's Lumber.....₱ gro $6.75
Dixon's Carpenters'.....10%

Picks—

Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00.....60&10@60&10&5%

Picture Nails—

See *Nails, Picture.*

Pinking Irons—

See *Irons, Pinking.*

Pins—

Bow—

Humason, Beckley & Co.'s.....60&10%
Sargent & Co.'s, $17 and $18.....60&10%
Peck, Stow & W. Co.....50&10&50&10&5%

Curtain—

Silvered Glass.....net
White Enamel.....net

Escutcheon—

Iron, list Nov. 11, 1885..50&10@50&10&5%
Brass.....60@60&5%

Pipe, Wrought Iron—

List October 12, 1892.

1¼ and under, Plain	55&5@55&10%	
1¼ and under, Galv	45&5@45&10%	
1⅛ and over, Plain	65&5@65&10%	
1⅛ and over, Galv	55&5@5&10%	
Boiler Tubes, list Oct. 24, 1892	.. ..	.65%
Casing, list Nov. 16, 1892		52½%
Inserted Joints Casing, list Nov. 16, 1892		47½%
Steel Boiler Tubes		27½%
Cold Drawn Seamless Steel Tubing		..50%

Planes and Plane Irons—

Wood Planes—

Molding.....40&10@40&10&10&10%
Bench, First quality..50&10@ 50&10&10&10%
Bench, Second quality..55&10@ 55&10&10&10%
Bailey's (Stanley R. & L. Co.).....50&10%

Iron Planes—

Bailey's (Stanley R. & L. Co.).....50&10%
Miscellaneous Planes (Stanley R. & L. Co.).....25&10%
Steers' Iron Planes.....40&10%
Meriden Mal. Iron Co.'s.....40@40&10%
Davis' Iron Planes.....40@40&10%
Birmingham Plane Co.....50@50&10%
Gage Tool Co.'s Self-setting...20&10&10%
Chaplin's Iron Planes.....40@40&10%
Sargent's.....60%
Standard Tool Co.....50@50&5%

Plane Irons—

Butcher's.....$5.00@$5.25 to $
Buck Bros.....30%
Auburn Thistle, Ohio, Sandusky.....30&10%
L. & I. J. White.....25
Stanley R. & L. Co.....50&10%

Plates—

Felloe.....₱ ℔ 6¢@6¾¢

Pliers and Nippers—

Button's Patent.....60%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in., $21.00 ₱ doz.....40%
Humason & Beckley Mfg. Co..50@50&10%
Lindsay's Giant.....33⅓%
Gas Pliers.....60%
Gas Pliers, Custar's Nickel Plated..60&5%
Eureka Pliers and Nippers.....40%
Russell's Parallel.....25%
P., S. & W. Cast Steel.....50%
P., S. & W. Tinners' Cutting Nippers, add 6%.....10%
Carew's Pat. Wire Cutters.....20%
Morrill's Parallel, ₱ doz., $12.00....30&5%
Cronk's 8 in., $15.00; 10 in., $21.00.... 50&50&5%
Cronk's Button Pattern.....50&10@60%
Cronk's Carrier Pliers.....60@60&5%

Plumbs and Levels—

Regular List.....75&10@75&10&5%
Stanley's Duplex.....20&10%
Stanley's Handy.....20&10%
Disston's.....50%
Pocket Levels.....70&10@70&10&10%
Davis Iron Levels.....30%
Davis' Inclinometers.....10&10%

Poachers, Egg—

Buffalo Steam Egg Poachers, ₱ doz, No. 1, $6.00; No. 2, $9.00.....25%
Silver & Co., 6-Ring, ₱ doz, $4.00; 3-Ring.....$2.00

Pokes, Animal—

Bishop's I. X. L.....₱ doz $6.00
Bishop's O. K.....₱ doz $5.25
Bishop's Pioneer.....₱ doz $3.75
Bishop's American.....₱ doz $2.75
Eagle, Double Stale.....₱ doz $5.75
Eagle, Single Stale.....₱ doz $3.75
Buckeye, Single Stale.....₱ doz $2.75
Bolding.....₱ doz $6.00

Police Goods—

R. I. Tool Co., Handcuffs, $15.00 ₱ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₱ doz 10%
Tower's.....25%
Daley's Improved Handcuffs; 2 Hands, Polished, ₱ doz, $48.00; Nickeled, $57.00; 3 hands, Polished, ₱ doz, $72.00; Nickeled, $84.00.....25%
J. P. Lovell's Police Goods.....20%

Polish—

Metal—

Prestoline.....30%
Prestoline Paste.....33⅓%
Gaston's Silver Compound.....33⅓%

Stove—

Joseph Dixon's.....₱ gro, $6.00, 10%
Gem.....₱ gro, $4.50, 10%
Gold Medal.....₱ gro, $6.00, 25%
Lustro.....₱ gro, $4.75
Ruby.....₱ gro, $3.75
Rising Sun, 5 gro lots.....₱ gro $5.50
Dixon's Plumbago.....₱ ℔ 8¢
Boynton's Noon Day.....₱ gro $13.00
Parlor Pride Stove Enamel, ₱ gro
Yates' Liquid, 2 3 5 10 gal
₱ gal...$0.80 .70 .60 .50
Yates Standard Paste Polish, 10 ℔ cans, ₱ ℔ 12½¢
Jet Black.....₱ gro $3.50
Japanese.....₱ gro $3.50
Fireside.....₱ gro $2.50
Diamond O. K. Enamel.....₱ gro $19.00
Bonnell's Liquid Stove Polish, ₱ gro $9.00
Bonnell's Paste Stove Polish, ₱ gro $6.00
Black Eagle Benzine Paste, 5 and 10 ℔ cans.....12½¢
Black Jack Water Paste, 5 and 10 ℔ cans.....12½¢
Nickel Plate Paste.....₱ gro $6.00
Crown Paste.....₱ gro $7.20
Crown Paste in 5 and 10 ℔ pails, ₱ ℔ 12¢
Black Flag.....₱ gro $7.20
Black Flag, 5 and 10 ℔ pails.....₱ ℔ 12¢
Black Flag, liquid, in bottles, ₱ gro $8.00
Diamond Rock Nickel Cleaner.....₱ gro $10.20
Raven Paste:
5-lb. pails, (per case of 6 or 12), ₱ ℔ .12¢
Less than case.....₱ ℔ .15¢
Liquid, 6 oz. bottles.....₱ gross, $8.00
Liquid, 8 oz. bottles.....₱ gross, $9.00
Water Polish.....₱ gross, $5.85

Poppers, Corn—

Round or Square, 1 qt..₱ gr $10.00@10.50
Round or Square, 1½ qt..₱ gr $15@$15.50
Round or Square, 2 qt..₱ gr $18.50@19.00

Post Hole and Tree Augers and Diggers—

See *Diggers, Post Hole, &c.*

Potato Parers—

See *Parers, Potato.*

Pots—

Glue—

Tinned.....40&10@40&10&10&5%
Enameled.....40&10@40&10&10&5%
Family, Howe's "Eureka".....40%
Family, L. F. C.'s "Handy".....50%

Powder—

In Canisters—

Fine Sporting, 1 ℔ each.....$0.90
Duck, 1 ℔ each.....60
Rifle, 1 ℔ each.....30
Rifle, ½ ℔ each.....18
Rifle, ¼ ℔ each.....13

In Kegs—

Rifle, 25-℔ kegs.....$4.00
Rifle, 12½-℔ kegs.....2.25
Rifle, 6¼-℔ kegs.....1.25
Duck, 25-℔ kegs.....5.00
Duck, 12½-℔ kegs.....2.75
Duck, 6¼ ℔ kegs.....1.50

Presses—

Fruit and Jelly—

Enterprise Mfg. Co. 30%
Henis ..... ₱ doz $3.50
Shepard's Queen City 40%
Silver & Co. ..... ₱ doz $2.75

Pruning Hooks and Shears—See *Shears.*

Pullers, Nail—

Scranton ..... ₱ doz., $18.00, 33⅓%
Curtis Hammer ..... ₱ doz., $9.00
Giant, No. 1 ..... ₱ doz., $18.00, 10%
Giant, No. 2 ..... ₱ doz., $15.00, 10%
Pelican ..... ₱ doz., $9.00, 25%
Eclipse ..... Each, $2.00, net
Economy ..... ₱ doz., $6.00

Pulleys—

Hot House, Awning, &c. ..... 66⅔@70%
Japanned Screw ..... 60&10@10%
Brass Screw 70%
Japanned Side ..... 60&10@10%
Japanned Clothes Line ..... 60&10%
Empire Sash Pulley ..... 55@60%
Moore's Sash, Anti-Friction 50%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50 ..... 50&10@50&10&5%
Hay Fork, "Anti-Friction," 5 in. solid, $5.70 ..... 50%
Hay Fork, "F" Common and Patent Bushed 20%
Hay Fork, Tarbox Pat. Iron 20%
Hay Fork, Reed's Self-Lubricating 60%
Shade Rack 45%
Tackle Blocks—See Blocks.
Moore's Anti-Friction 5 in. Wheel, ₱ doz., $12.00 ..... 40%

Pumps—

Cistern, Best Makers ..... 60@60&10%
Pitcher Spout, Best Makers ..... 67½@70%
Pitcher Spout, Cheaper G'ds ..... 75@75&10%

Punches—

Saddler's or Drive, good ..₱ doz., 60@65%
Bemis & Call Co.'s Cast Steel Drive. 50&5%
Bemis & Call Co.'s Springfield Socket ..... 50&5%
Spring, good quality ..₱ doz., $2.50@$2.60
Spring, Leach's Pat 15%
Bemis & Call Co.'s Spring and Check. 40%
Solid Tinners', P., S. & W. Co., ₱ doz., $1.44 ..... 55%
Tinners' Hollow Punches, P., S. & W. Co. ..... 20&2%
Rice Hand Punches 15%
Avery's Revolving 40%
Avery's Sawset and Punch—See Sawsets.

Rail—

Sliding Door, Wr't Brass ..₱ ℔, 35¢, 40%
Sliding Door, Bronzed Wr't Iron ..₱ ft., 7¢
Sliding Door, Iron, Painted ..₱ ft., 4¢, 40%
Barn Door, Light..in. ⅛ ⅜ ¾
Per 100 feet $2.00 2.50 3.10, 10%
B. D. for N. E. Hangers—
Small. Med. Large.
Per 100 feet ..... $3.15 2.70 3.25 Net
Terry's Steel Rail ..... ₱ ft., 4½¢
Victor Track Rail, 7¢ ₱ foot ..... 50&2%
Carrier, double braced, Steel Rail, ₱ foot ..... 3½@4¢
Moore's Wrought Iron 25%
Moody Steel Rail, ₱ ft., 5¢ 45%

Rakes—

Cast Steel, Association g'ds ..70@70&5&2%
Cast Steel, outside g'ds ..... 70@70&5&2%
Malleable ..... 70@70&5%
Gibbs' Lawn Rake ..... ₱ doz., $4.90
Gibbs' Canton Lawn Rake ..₱ doz., $3.75
Gibbs' Acme Lawn Rake ..₱ doz., $4.75
Gibbs' Favorite Lawn Rake. ₱ doz., $3.90
Gibbs' Crown Lawn Rake, No. 1 ..... ₱ doz., $4.90
Gibbs' Crown Lawn Rake, No. 2 ..... ₱ doz., $5.40
Oneida Lawn Rake ..... ₱ doz., $6.00
Fort Madison Prize Bow Brace and Peerless 65%
Fort Madison Steel Tooth Lawn Rake, $6.00 ..... 25%

Razors—

J. R. Torrey Razor Co 20%
Wostenholm and Butcher, $10 to £ 10%
Jordan's AAAL, new list ..... Net
Jordan's Old Faithful, new list ..... Net
Galvanic ..... ₱ doz., $15.00
Electric Cutlery Co ..... Net
Campbell Cutlery Co 50%

Razor Strops—

See *Strops, Razor.*

Rings and Ringers—

Bull Rings—

Union Nut Co 55%
Sargent's ..... 75&10%
Hotchkiss' low list 30%
Humason, Beckley & Co.'s ..... 70&10%
Peck, Stow & W. Co.'s..50&10@50&10&10%
Elirich Hdw. Co., White Metal, low list. 50@50&10%

Hog—

Top of the Hill Ringers ..... ₱ doz $2.00
Top of the Hill Rings ..... ₱ doz $1.25
Hill's Improved Ringers ..... ₱ doz $1.25
Hill's Old Style Ringers ..... ₱ doz $1.12½
Hill's Tongs ..... ₱ doz $3.00
Hill's Rings ..... ₱ doz bxs $1.00
Perfect Rings ..... ₱ doz bxs $1.50
Perfect Ringers ..... ₱ doz $2.15@$2.25
Blair's Hog Ringers ..... ₱ doz $2.00
Blair's Hog Rings ..... ₱ doz 90¢@$1.00
Champion Ringers ..... ₱ doz $2.00
Champion Rings, Double ..... ₱ doz $2.25
Brown's Ringers ..... ₱ doz $2.00
Brown's Rings ..... ₱ doz $1.15@$1.25
Electric Hog Rings ..... ₱ doz boxes $1.50
Electric Hog Ringers ..... ₱ doz $2.00
Major Rings ..... ₱ doz $1.25
Major Ringers ..... ₱ doz $2.00

Rivets and Burrs—

Iron, list Nov. 17, '87 ..60&10@60&10&10%
Copper ..... 60&10%
Coppered Iron, Bettina Brand 40%

Rivet Sets—See *Sets.*

Rods—

Stair, Brass ..... 25@30%
Stair, Black Walnut ..... ₱ doz 40¢

Rollers—

Barn Door, Sargent's list. ..... 60&10&10%
Acme Moore's Anti-Friction 55%
Union Barn Door Roller 70%
Thompson Mfg. Co.,s Lawn Rollers ..30%

Rope—The following prices are f.o.b. New York or factory, and are shaded ¼¢@½¢ on large lots; terms, 1½% for cash.

Manilla, 7-16 in. diam. and larger ₱ ℔ 10½¢
Manilla ..... ⅜ in. ₱ ℔ 10¾¢
Manilla ..... ½ and 5-16 in. ₱ ℔ 11¼¢
Manilla, Tarred Rope ..... ₱ ℔ 9¾¢
Manilla, Hay Rope ..... ₱ ℔ 9¾¢
Sisal ..... 7-16 inch and larger ₱ ℔ 7¾¢
Sisal ..... ⅜ in. ₱ ℔ 8¼¢
Sisal ..... ¼ and 5-16 in. ₱ ℔ 8¾¢
Sisal, Hay Rope ..... ₱ ℔ 7¾¢
Sisal, Tarred Rope ..... ₱ ℔ 7½¢
Sisal, Medium Lath Yarn ..... ₱ ℔ 7¼¢
New Zealand ..7-16 in. & larger ₱ ℔ 6¾¢
New Zealand ..⅜ inch, ₱ ℔ 7
New Zealand ..¼ and 5-16 inch, ₱ ℔ 7¼¢
New Zealand, Hay Rope ..... ₱ ℔ 6¾¢
New Zealand, Tarred Rope ..... ₱ ℔ 6 ¢
Cotton Rope ..... ₱ ℔ 13½@16¢
Jute Rope ..... ₱ ℔ 6½@7¢

Wire—

List February, 1892. All kinds 45%

Rules—

Boxwood ..... 80&10&10%
Ivory ..... 50&10%
Starrett's Rules and Straight Edges, Steel ..... 25&10%

Sad Irons—See *Irons, Sad.*

Sand and Emery Paper and Cloth—

See *Paper and Cloth.*

Sash Cord—See *Cord, Sash.*

Sash Locks—See *Locks, Sash.*

Sash Weights—

See *Weights, Sash.*

Sausage Stuffers or Fillers—See *Stuffers or Fillers, Sausage.*

Saws—The following prices are generally cut by jobbers.

Disston's Circular ..... 45@45&5%
Disston's Cross Cut ..... 45@45&5%
Disston's Hand 25%
Woodrough & McParlin.
Hand, Panel and Rip ..... 30@30&5%
Narrow Champion Cross Cuts with Handles, ₱ foot ..... 18@20¢
Champion Thin Back Cross Cuts, ₱ foot ..... 26@28¢
Champion Extra Thin Back Cross Cuts, ₱ foot ..... 28@31¢
One Man Champion Cross Cuts, ₱ foot ..... 37@40¢
Wheeler, Madden & Clemson Mfg. Co.
Hand, Panel and Rip ..... 35@35&5%
Narrow Champion Cross Cuts with Handles, ₱ foot ..... 18@20¢
Champion Thin Back Cross Cuts, ₱ foot ..... 26@28¢
Champion Extra Thin Back Cross Cuts, ₱ foot ..... 28@31¢
One Man Champion Cross Cuts, ₱ ft. ..... 37@39¢
Atkins' Circular Shingle & Heading. 50%
Atkins' Silver Steel Diamond X Cuts ₱ foot 70¢
Atkins' Special Steel Dexter X Cuts ₱ foot 50¢
Atkins' Special Steel Diamond X Cuts ₱ foot 32¢
Atkins' Champion and Electric Tooth X cuts ..... ₱ foot 30¢
Atkins' Hollow Back X Cuts ..₱ foot 20¢
Atkins' Mulay, Mill and Drag 40%
Atkins' One-Man Saw, with handles, ₱ foot 40¢
Peace Circular and Mill ..... 45@45&5%
Peace Hand Panel and Rip ..... 25@25&5%
Peace Cross Cuts ..... 45@45&5%
Richardson's Circular and Mill. 45@45&5%
Richardson's X Cuts ..... 45@45&5%
Richardson's Hand, &c ..... 25@25&5%
C. E. Jennings & Co. Hand, Panel and Rip ..... 33⅓@33⅓&10%

Hack Saws—

Griffin's, complete ..... 40&10@50
Griffin's Hack Saw Blades ..... 40&10@50
Star Hack Saws and Blades 25%
Eureka and Crescent 25%

Scroll—

Lester, complete, $10.00 ..... 25%
Rogers, complete, $4.00 ..... 25%
Barnes' Builders' and Cab Makers' $15, 25%
Barnes' Scroll Saw Blades 35%

Saw Frames—

See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Scales—

Hatch, Counter, No. 171, good quality, ₱ doz $18.00@$19.00
Hatch, Tea, No. 161 ..₱ doz $6.50@$7.00
Union Platform, Plain ..... $2.10@2.20
Union Platform, Striped ..... $2.40@2.50
Chatillon's Grocers' Trip Scales 50%
Chatillon's Eureka 25%
Chatillon's Favorite 40%
Family, Turnbulls ..... 30@30&10
Riehle Bros.' Platform 40%

Scale Beams—

See *Beams, Scale.*

Scissors, Fluting 45%

Scrapers—

Adjustable Box Scraper (S. R. & L. Co.) $6.00 ..... 30&10%
Box, 1 Handle ..... ₱ doz $2.25@$2.50
Box, 2 Handle ..... ₱ doz $3.00@$3.25
Defiance Box and Ship ..... 20&10%
Fox ..... 50&10&10%
Ship, Common ..... ₱ doz $3.50 net
Ship, R. I. Tool Co 10%

Screen Window and Door Frames—See *Frames*

Screw Drivers—

See *Drivers, Screw.*

Screws—

Bench and Hand—

Bench, Iron ..... 55&10@55&10&10%
Bench, Wood, Beech ..... ₱ doz $2.25
Bench, Wood, Hickory ..... 20&10%
Hand, Wood ..... 25&10@25&10&5%
Hand, Grand Rapids, list 35%

Coach, Lag and Hand-Rail—

Lag, Blunt Point, list Jan. 1, 1890. 75&10%
Coach and Lag, Gimlet Point, list Jan. 1, 1890 ..... 75@75&10%
Hand Rail, Sargent's ..... 70&10%
Hand Rail, H. & F. Mfg. Co. ..70@10@75%
Hand Rail, Am. Screw Co 75%

Jack Screws—

Jack Screws, Millers Falls list. 50@50&10%
Jack Screws, P., S. & W 35%
Jack Screws, Sargent 70%
Jack Screws, Stearns' ..... 40@40&10%

Cork—

Humason & Beckley Mfg. Co. ..40&10@50%
Williamson's ..... 33⅓@33⅓&5%
Howe Bros. & Hulbert 35%

Machine—

Flat Head Iron 65%
Round Head Iron 60%

Wood—

List January 1, 1891.
Flat Head Iron 70%
Round Head Iron 65%
Flat Head Brass 70%
Round Head Brass 65%
Flat Head Bronze 70%
Round Head, Bronze 65%
Extra 10 or 10 & 5% often given.
Rogers' Drive Screws 82½%

Scroll Saws—See *Saws, Scroll.*

Scythes—

Grain ..... 40&5@40&10%
Grass ..... 40&10&50%

Scythe Snaths—

See *Snaths, Scythe.*

Sets—

Awl and Tool—

Aiken's Sets, Awls and Tools, No. 20, ₱ doz $10.00 ..... 60@60&5%
Fray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $12; 4, $9 ..... 45%
Millers Falls Adj. Tool Hdls. Nos. 1, $12; 2, $18 ..... 25%
Henry's Combination Haft ..₱ doz $6.50
Stanley's Excelsior:
No. 1, $7.00; No. 2, $4.00; No. 3, $5.50 ..... 30&10%
Common Brad Sets,
No. 42, $10.50; No. 43, $12.50 ..70&10&5%

Nail—

Square ..... ₱ gr. $4.00@$4.25
Round ..... ₱ gr. $3.25
Buck Bros 27½%
Cannon's Diamond Point ..₱ gr. $12, 20%

Rivet—

Regular list 70%

Saw—

Stillman's Genuine ..₱ doz $5.00@7.75, 40&5%
Stillman's Pattern, Hand, ₱ doz $3.25; Cross Cut, $5.25 ..... 55%
Common Lever ..₱ doz $2.00, 45@50%
Morrill's No. 1, $15.00 ..40@20%
No. 11, $15.00 ..40&10@40&10&5%
Nos. 3 and 4, $18.00 ..40&5%
No. 5, $24.00 ..40&5%
Leach's ..No. 0, $8.00; No. 1, $15..15@20%
Nash's ..20&10@20&10&10
Hammer, Hotchkiss ..$5.50, 10%
Hammer, Bemis & Call Co.'s new Pat. 30&5%
Bemis & Call Co.'s Lever and Spring Hammer ..... 30&5%
Bemis & Call Co.'s Plate 10%
Bemis & Call Co.'s Cross Cut 12½%
Aiken's Genuine ..$13.00, 50&10@60%
Aiken's Imitation ..$7.00, 55&5%
Hart's Pat. Lever 20%
Disston's Star 25%
Leopold ..40&10@50%
Atkin's Lever ..₱ doz No. 1, $6.00
Atkin's Criterion ..₱ doz No. 1, $6.00
Croissant (Keller), No. 1, $15.00; No. 2, $24.00 ..... 40&10%
Avery's Saw Set and Punch 50%
Kohler's Royal ..₱ doz $7.00
Kohler's Giant Royal ..₱ doz $12.00
Crescent ..₱ doz $3.00
Lloyd's Acme ..₱ doz $15, 40&10%
Taintor Positive ..₱ doz $18, 50%

Sharpeners, Knife—

Larkins'.
Applewood Handles ..₱ doz. $6.00, 40%
Rosewood or Cocobola. ₱ doz. $9.00 40%

Shaves, Spoke—

Iron 45%
Wood 30%
Bailey's (Stanley R. & L. Co.) ..... 40&10%
Stearns' ..... 30&10%
Cincinnati ..... 25&10%
Goodell's ₱ doz. $9.00 ..... 25%

Shears—

American (Cast) Iron ..75&10@75&10&5%
Barnard's Lamp Trimmers ..₱ doz. $3.75
Tinners' ..... 20&2%
Seymour's, List Dec. 1881. 60&10&10@60&10&10&5%
Heinisch's, List Dec. 1881. 60&10&10@60&10&10&5
Heinisch's Tailor's Shears 33⅓%
Cast Steel Trimmers:
First quality ..... 80@80&10%
Second quality ..... 80&10@80&10&10%
Acme Cast Shears ..... 10&10%
Diamond Cast Shears 10%
Clipper ..... 10&10%
Victor Cast Shears ..... 75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel 40%
Chicago Drop Forge & F. Co, Solid Steel Forged 60%
Davenport Cutlery Co ..... 60@60&10%
Clauss Shear Co., Japanned 70%
Clauss Shear Co., Nickeled, same list. 60%
Galvanic 3½ to 9 in., ₱ doz. $1.00 ₱ inch
Electric Cutlery Co ..... Net
Campbell Cutlery Co., Jap'd 75%
Nickel Plated 65%

Pruning Shears and Hooks

Disston's Combined Pruning Hook and Saw ..... ₱ doz. $18.00, 20&10%
Disston's Pruning Hook, ₱ doz. $12.00 20&10%
E. S. Lee & Co.'s Pruning Tools ..50@60%
Pruning Shears, Henry's Pat., ₱ doz. $3.75@$4.00
Henry's Pruning Shears, ₱ doz. $4.25 @$4.50
Wheeler, M. & C. Co., Combination. ₱ doz $12.00, 20%
Dunlap's Saw and Chisel, ₱ doz $8.50, 30%
J. Mallinson & Co., No. 1, $5.25; No. 2, $7.25
P., S. & W. Co 60%

Tinners', &c.—

Shears and Snips (P. S. & W.) ..... 20@25%
Snips, J. Mallinson & Co 33⅓%

Sheaves—

Sliding Door—

M. W. Co., list July, 1888 ..50&10@60&5%
R. & E., list Dec. 18, 1885 ..... 55&20%
Corbin's list ..... 60&10&2%
Patent Roller ..... 60&10&2%
Patent Roller, Hatfield's 75%
Russell's Anti-Friction, list Dec. 18, 1885 ..... 60&2%
Moore's Anti-Friction 50%

Sliding Shutter—

R. & E., list Dec. 18, 1885 ..... 60&10&2%
Sargent's list 70%
Reading list ..... 60&10&10%

Shells—

First quality 4, 8, 10 and 12 gauge 25&10&2%
First quality Rival, Club and Climax brands, 14, 16 and 20 gauge ($7.50 list) ..... 20&10&2%
Prize ..... 40&2%
Star, Club, Rival and Climax Brands... 33⅓&10&2%
Smokeless brand, 12, 10, 16 gauge. 33⅓&10&2%
Trap brand, 12 and 10 gauge..33⅓&10&2%
Selbold's Comb. Shot Shells ..... 15&2%
Brass Shot Shells, 1st quality ..... 60&2%
Brass Shot Shells, Club, Rival, Climax. 65&2%

Shells Loaded—

Standard List, July 19, 1890 ..... 40&10&10@40&10&10&5%

Ship Tools—

L. & I. J. White ..... 20&5%

Shoes, Horse, Mule, &c.—

Horse—

Burden's, Perkins', Phœnix, Diamond State & Bryden's Boss, at factory..$4.00
Bryden's Frog Pressure, at factory..$5.00

Mule—

Add $1 ₱ keg to above prices.

Ox Wrought—

Ton lots ..... ₱ ℔ 9¢
1000 ℔ lots ..... ₱ ℔ 9½¢
500 ℔ lots ..... ₱ ℔ 10¢

Shot—

	Ton lots	Small lots
Drop, up to B, 25-℔ bag	$1.40	$1.45
Drop, up to B, 5-℔ bag	.35	.35
Drop, B and larger, 25-℔ bag	1.65	1.70
Drop, B and larger, 5-℔ bag	.40	.40
Buck and Chilled, 25-℔ bag	1.65	1.70
Buck and Chilled, 5-℔ bag	.40	.40
Dust Shot, 25-℔ bag	2.00	2.00
Dust Shot, 5-℔ bag	.45	.45

Shovels and Spades—

Ames' Shovels, Spades, &c., list Nov. 1, 1885 ..... 20%
NOTE.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron ..... 50&10%
Griffith's C. S. ..... 60@60&10%
Griffith's Solid C. S. R. R. Goods 20%
St. Louis Shovel Co ..... 20@20&7½%
Hussey, Binns & Co ..... 15@25%
Hubbard & Co ..... 20@20&7½%
Lehigh Mfg. Co ..... 50&10%
H. M. Myers Co 30%
Payne Pettebone & Son ..... 33⅓&5%
Remington's (Lowman's Pat.) 30&10@40%
Rowland's Black Iron ..... 50&10%
Rowland's Steel ..... 60&5@60&10%
Terra Haute Shovel & Tool Co 35%

Shovels and Tongs—

Iron Head ..... 60&10@60&10&5%
Brass Head ..... 60&10&10%

Sieves—

Mann's Tin Rim ..... 50&25%
Buffalo Metallic, S. S. & Co ..... 50&25%
Shaker (Barler's Pat.) Flour Sifters ₱ gr $18.00@$20.00
Electric ..... ₱ gr $17.00@$20.0
A. & W. Sifters ..... ₱ gr $18.00@$20.00
Hunter's ..... ₱ gr $18.00@$20.00

Sieves, Wooden Rim—

	Iron.	Plated.
Mesh 1 Nested, ₱ doz	$0.80	$1.00
Mesh 20, Nested, ₱ doz	.95	1.10
Mesh 24, Nested, ₱ doz	1.15	1.25

Sinks, Wrought Steel—

Columbus, Painted or Unpainted ..... 30@30&10 %
Columbus, Galvanized and Enameled. 60@50&10 %
New Era, Painted ..... 40&10@50&5 %
New Era, Galvanized and Enameled... 60&10&10@70&5 %

Skeins, Thimble—

Western list ..... 75&5@75&10%
Columbus Wrt. Steel..Special net prices
Coldbrookdale Iron Co 60%
Seneca Falls Pattern 60%
Utica P. S. T. Skeins 60%
Utica Turned and Fitted 35%

Slates—

School, by case ..... 50&10@50&10&10%

Sleds, Hand—

Tubular Steel ..... ₱ doz $24.00, 40&5%
(Lots of 6 doz 50%)

Snaps Harness &c.—

Anchor (T. & S. Mfg. Co.).....65%
Fitch's (Bristol).....50&10%
Hotchkiss.....10%
Andrews.....50%
Sargent's Patent Guarded.....70&10&10%
German, new list.....40&10%
Covert.....50&10&5&2%
Covert, New Patent.....50&10&5&2%
Covert, New R. E.....60&10&5&2%
Covered Spring.....60&10&10%
Cover's Saddlery Works' Triumph.33⅓%

Snaths, Scythe—

List.....50@50&5%

Soldering Irons—

See *Irons, Soldering.*

Spittoons, Cuspidors, &c.

Standard Fiberware—

Cuspidors, 8¼-inch, ₱ doz., No. 5, $8; No. 5X, $9.
Spittoons, Daisy, 8-inch, No. 1, $4; 10 and 11 inch, $6.

Spoke Shaves—

See *Shaves, Spoke.*

Spoke Trimmers—

See *Trimmers, Spoke.*

Spoons and Forks—

Tinned Iron—

Basting, Cen. Stamp. Co.'s list.....70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list.....70&10%
Buffalo, S. S. & Co.....33⅓&2%

Silver Plated—

4 months or 5% cash 30 days:
Meriden Brit. Co., Rogers.....40&15%
C. Rogers & Bros.....40&15%
Rogers & Bros.....40&15%
Reed & Barton.....40@40&5%
Wm. Rogers Mfg. Co.....40, 15&5%
Simpson, Hall, Miller & Co.....40, 15&5%
Holmes & Edwards Silver Co.....40, 15&5%
L. Boardman & Son.....50&12½%

Miscellaneous—

Holmes & Edwards Silver Co.:
No. 67 Mexican Silver.....50&10&5%
No. 50 Silver Metal.....50&10&5%
No. 24 German Silver.....50&10&5%
No. 50 Nickel Silver.....50&5%
No. 49 Nickel Silver.....50&10&5%

Wm. Rogers Mfg. Co.:
Rogers' Silver Metal.....50&10&6%
18% Rogers' German Silver.....60&6%
22% Rogers' Nickel Silver.....50&6%
German Silver.....50@50&5%
German Silver, Hall & Elton..50&5% cash
Nickel Silver.....50&5@50&10&5% cash
Brittannia.....60@60&5%
Boardman's Nickel Silver, list July 1, 1891.....60&7½&5%
Boardman's Brittannia Spoons, case lots.....60&5% cash

Springs—

Door—

Torrey's Rod, 39 in.....₱ doz $1.20@1.25
Gray's, ₱ gr. $20.00.....25%
Bee Rod, ₱ gr., $20.00.....20@25%
Warner's No. 1, ₱ doz $1.50; No. 2, $3.40.....55@55&10%
Gem (Coil), list April 19, 1886.....10@15%
Star (Coil), list April 19, 1886..20&2@20&5%
Victor (Coil).....60&10@60&10&5%
Champion (Coil).....60&10@60&10&10%
Cowell's, No. 1, ₱ doz $18.00; No. 2, $15.00.....50@50&10%
Rubber, complete, ₱ doz $4.50.....55&10%
Hercules.....50@50&10%

Carriage, Wagon, &c.—

Elliptic, Concord, Platform and Half Scroll.....60&10&10%
Cliff's Bolster Springs.....25%

Squares—

Steel and Iron.....
Nickel-Plated.....85@85&5%

Try Square and T Bevels.....60&10&10%
Disston's Try Square and T Bevels....50%
Winterbottom's Try and Miter....30&10%
Starrett's Micrometer Caliper Squares.....25%
Avery's Flush Bevel Squares.....40%
Avery's Bevel Protractor.....50%

Squeezers—

Fodder—

Blair's.....₱ doz $2.00
Blair's "Climax".....₱ doz $1.25

Lemon—

Porcelain Lined, No. 1....₱ doz $6.00 .....25&30%
Wood, No. 2.....₱ doz $3.00, 35%
Wood, Common.....₱ doz $1.70@1.75
Dunlap's Improved.....₱ doz $3.75, 20%
Sammis....No. 1, $5.00; No. 2, $0; 12, $18 ₱ doz.....25&10%
Jennings' Star.....₱ doz $2.50
The Boss.....₱ doz $2.50
Dean's..Nos. 1, ₱ doz $0.50; 2, $3.35; 3, $1.90; Queen, $2.50
Little Giant.....50@50&5%
King.....40&5%
Hotchkiss Straight Flash....₱ doz $12.00
Silver & Co., Glass.....₱ gro. $9.00
Manny Lemon Juice Extractor:
Standard.....₱ doz $0.75@$1.00
Improved.....₱ doz $2.00

Standard Fiber Ware—

See *Ware, Standard Fiber.*

Staples—

Blind—

Barbed, ½ in. and larger.....₱ ℔ 7@7½¢
Barbed, ¾ in.....₱ ℔ 8@8½¢
Fence Staples, Galvanized, Fence Staples Plain..... Same price as B'rb Wire / See Trd. Rep

Steelyards 40&10@50%

Stocks and Dies—

Blacksmith's:
Waterford Goods.....35%
Butterfield's Goods.....35%
Lightning Screw Plate.....25@30%
Reece's New Screw Plates.....25@30%
Reversible Ratchet.....30%
Gardner.....25%
Green River.....25@30%

Stops, Bench—

Morrill's.....₱ doz $9, 50%
Hotchkiss's.....₱ doz $5, 10@10&10%
Weston's, No. 1, $10; No. 2, $9, 25&10&5%
McGill's, ₱ doz $3.....10%
Cincinnati.....25&10%
Terrell's Nos. 1 and 2, ₱ doz., $3; No. 3, $3.60.....30%

Stone—

Sythe Stones—

Pike Mfg. Co., list April, 1892.....33⅓%
Cleveland Stone Co., list Nov. 1892..33⅓%

Oil Stones, &c.—

Pike Mfg. Co:
Hindostan No. 1, ₱ ℔... 8¢
Sand Stone.....5¢
Turkey Oil Stone, 4 to 8 in.....80¢
Turkey Slips.....$2.00
} 40 @ 40& 10%

Washita Stone, Extra.....50¢
Washita Stone, No. 1.....40¢
Washita Stone, No. 2.....30¢
Washita Slips, Extra.....80¢
Washita Slips, No. 1.....70¢
Arkansas Stone, No. 1, 3 to 5½ in., $2.80
Arkansas Stone, No. 1 5½ to 8 in., $3.50
} 33⅓@33⅓&10%

Lake Superior.....₱ ℔ 13¢
Lake Superior Slips.....₱ ℔ 20¢

Stove Polish—

See *Polish, Stove.*

Stretchers Carpet—

Cast Steel, Polished.....₱ doz $2.2
Cast Iron, Steel Points.....₱ doz 75¢@80¢
Socket.....₱ doz $1.75
Bullard's.....25@25&10%

Strops, Razor—

Genuine Emerson.....60@60&5%
Imitation " ..₱ doz $2.00, 20&10&5%
Torrey's.....20%
Badger's Belt and Com.....₱ doz $2.00
Lamont Combination.....₱ doz $4.00
Jordan's Pat. Padded, list Nov. 1, '89, 50%
Electric Cutlery Co.....Net
Campbell Cutlery Co.....Net

Stuffer or Fillers, Sausage—

Miles' Challenge, ₱ doz $20.....50@50&5%
Perry....₱ doz, No. 1, $15.00; No. 0, $21.00.....50&5@50&10%
Draw Cut No. 4, each $30.00.....20%
Enterprise Mfg. Co.....30%
Silver's.....40&10%

Sweepers, Carpet and Lawn—

Carpet—

Bissell No. 5.....₱ doz $17.00
Bissell No. 8.....₱ doz $20.00
Bissell, Grand.....₱ doz $36.00
Standard.....₱ doz $24.00
Domestic.....₱ doz $21.00
Domestic, No. 2.....₱ doz $22.00
Grand Rapids.....₱ doz $24.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic.....₱ doz $15.00
Improved Parlor Queen, Nickeled.....₱ doz $27.00
Japanned.....₱ doz $24.00
Excelsior.....₱ doz $22.00
Garland.....₱ doz $18.00
Parlor Queen.....₱ doz $24.00
Housewife's Delight.....₱ doz $15.00
Queen.....₱ doz $16.00
Queen, with band.....₱ doz $18.00
Ring.....₱ doz $30.00
Weed, Improved.....₱ doz $18.00
Hub.....₱ doz $16.00
Cog-Wheel.....₱ doz $16.00
Ladies' Friend.....₱ doz $15.00
Ladies' Friend No. 2.....₱ doz $16.00
Advance.....₱ doz $18.00
Our Leader.....₱ doz $19.00
Triumph.....₱ doz $20.00
Goshen.....₱ doz $21.00
Supreme.....₱ doz $22.00
Easy.....₱ doz $22.00
Gilt Edge.....₱ doz $24.00
Acme.....₱ doz $26.00
Imperial.....₱ doz $26.00
Grand Republic.....₱ doz $30.00
Banner.....₱ doz $22.00
The Star.....₱ doz $21.00
Reliable.....₱ doz $22.00
The Rapid.....₱ doz $22.00
Our Own.....₱ doz $27.00
Model.....₱ doz $27.00

Goshen Sweeper Company, Grand Rapids, Mich., make the following rebates:
5 dozen in 6 months.....₱ doz $1.00
10 dozen in 6 months.....₱ doz $2.00
25 dozen in 6 months.....₱ doz $3.00
Except on L.F., when 10 dozen price is $13.50, and 25 dozen $13.00.

Lawn—

Thompson Mfg. Co.....30%

Tacks, Brads &c.—

List October 19, 1889. Old established straight Weights. Short Weight goods are sold at lower prices.

Carpet Tacks—
American, Blued.....66⅔%
American, Tin'd and Cop'd.....70%
Steel, Bright and Blued.....66⅔%
Steel, Tinned and Coppered.....70%
Swedes Iron, Blued.....72½%
Swedes Iron, Tinned.....75%
American Iron Tacks, Domestic.66⅔%
Swedes Iron Tacks—
S. S., Blued.....66⅔%
S. S., Tinned.....70%
Lanc., Blued.....55%
Lanc., Tinned.....60%
Gimp and Lace Tacks—
S. S., Blued.....62½%
S. S., Tinned.....66⅔%
Lanc., Blued.....55%
Lanc., Tinned.....60%
Basket and Trimmers' Tacks—
Lanc.....52½%
S. S.....60%
Hungarian Nails.....60%
Common and Patent Brads.....55%
Leathered Tacks.....10%
Brush Tacks, S. S.....60%
Looking Glass Tacks, S. S.....35%
Picture-Frame Points, S. S.....35%
Finishing Nails.....60%
Trunk and Clout Nails—
Black.....62½%
Tinned or Coppered.....66⅔%
Basket Nails.....60%
Chair Nails.....62½%
Cigar Box Nails.....45%
Tin Capped Nails.....50%

Extra discount 25&2½%

Miscellaneous—

Double Point.....90@90&10%
Wire Carpet Nails.....50&10%
Plymouth Rock Steel Carpet Tacks...25%
Upholsterers' Nails.....40%

Wire Brads and Nails—

Steel-Wire Brads, R. & E. Mfg. Co.'s list 50&10%

See also *Nails, Wire.*

Tapes, Measuring—

American.....40@40&5%
Spring.....40%
Chesterman's, Regular list.....25@30%

Thermometers—

Tin Case.....80@80&10%

Thimble Skeins—See *Skeins.*

Ties, Bale—Steel.

Standard Wire, list.....50&10&5%

Tinners' Shears, &c —

See *Shears, Tinners' &c.*

Tinware—

Stamped, Japanned and Pieced, list Jan 20, 1887.....70&10@70&25%

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

Tools—

Coopers'—

Bradley's.....20%
Barton's.....20@20&5%
L. & I. J. White.....20&5%
Albertson Mfg. Co.....25%
Beatty's.....30%
Sandusky Tool Co.....30@30&5%
Shaves Cincinnati Tool Co.....20%

Lumber—

Ring Peavies, "Blue Line"..₱ doz $20.00
Ring Peavies, Common.....₱ doz $18.00
Steel Socket Peavies.....₱ doz $21.00
Mall. Iron Socket Peavies...₱ doz $19.00
Cant Hooks, "blue Line"...₱ doz $16.00
Cant Hooks, Common Finish..₱doz$14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish.....₱ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish.....₱ doz $14.00
Cant Hooks, Clip Clasp, Common Finish.....₱ doz $12.00
Hand Spikes....₱ doz 6 ft., $15.00; 8 ft., $20.00
Pike Poles, Pike & Hook, ₱ doz, 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₱ doz, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not ironed, ₱ doz, 12 ft., $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₱ doz, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00.
Swamp Hooks.....₱ doz $18.00

Saw—

Atkins' Perfection.....₱ doz $12.00
Atkins' Excelsior.....₱ doz $6.00
Atkins' Giant.....₱ doz $4.00

Tobacco Cutters—

See *Cutters, Tobacco.*

Transom Lifters—

See *Lifters, Transom.*

Traps—

Game—

Newhouse.....40@40&5%
Oneida Pattern.....70&10%
Game, Blake's Patent.....40&10&5%

Mouse and Rat—

Mouse Wood, Choker, ₱ doz holes, 9@10¢
Mouse, Round Wire.....₱ doz $1.50 10%
Mouse, Cage, Wire.....₱ doz $2.50 10%
Mouse, Catch-'em-alive..₱ doz $2.50 15%
Mouse, Bonanza.....₱ doz 0.90@$1.00
Rat, Decoy.....₱ gr $10.00, 10%
Ideal.....₱ gr $10.00
Cyclone.....₱ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₱ doz., 75¢; in full cases, ₱ doz.60@65¢
Hotchkiss Imp. Rat Killer...₱ gro $18.50
Hotchkiss New Rat Killer...₱ gro $16.50
Schuyler's Rat Killer.....₱ gro $15.00

Triers—

Butter and Cheese.....25%

Trimmers, Spoke—

Bonney's.....₱ doz $10.00, 50%
Stearns'.....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₱ doz. .....55&10%
Douglas'.....₱ doz $9.00, 20%
Cincinnati.....25%

Trowels—

Lothrop's Brick and Plastering, 20&10&5@35%
Reed's Brick and Plastering.....15%
Disston's Br'k and Plastering..25@25&5%
Peace's Plastering.....25@25&5%
Clement & Maynard's.....20@20&5%
Rose's Brick.....15@20%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garden.....70%
Cleves' Angle Trowel, ₱ gro, No. 1, $36; No. 2, $30; No. 3, $15. net @ 10%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list.....40%
Thompson Mfg. Co.....25%

Tubes, Boiler—

See Pipe.

Twine—

Flax Twine—

	BC.	R.
No. 9, ¼ and ⅛ ℔ Balls	25¢	31¢
No. 12, ¼ and ⅛ ℔ Balls	22¢	30¢
No. 18, ¼ and ⅛ ℔ Balls	20¢	29¢
No. 24, ¼ and ⅛ ℔ Balls	20¢	29¢
No. 36, ¼ and ⅛ ℔ Balls	18¢	28¢

No. 264 Mattrass, ¼ and ⅛ ℔ Balls,52@54¢
Chalk Line, Cotton, ⅛ ℔ Balls.....25¢
Mason Line, Linen, ⅛ ℔ Balls.....55¢
2-Ply Hemp, ¼ and ⅛ ℔ Balls (Spring Twine).....15½¢
3-Ply Hemp, 1 ℔ Balls.....16¢@16½¢
3-Ply Hemp, 1⅛ ℔ Balls.....15¢@15½¢
Cotton Wrapping, 5 Balls to ℔..15¢@16¢
2, 3, 4 and 5 Ply Jute, ⅛ ℔ Balls.....10¢
Wool.....6½¢@6¾¢
Paper.....13¢@14¢
Cotton Mops, 6, 9, 12 and 15 ₱ to doz..18¢

Vises—

Solid Box.....50&10@50&10&5%

Parallel—

Fisher & Norris Double Screw.....15&10%
Stephens'.....25@30%
Parker's.....20@25%
Wilson's.....55%
Howard's.....40%
Bonney's.....50%
Millers' Falls.....40@40&10%
Trenton.....40&5@40&10%
Merrill's.....15@20%
Sargent's.....70&10%
Backus and Union.....40%
Double Screw Leg.....15&10%
Prentiss.....20@25%
Simpson's Adjustable.....40%
Moore's.....20%
Massey Quick Action.....20@25%

Saw Filers—

Bonney's, Nos. 2 & 3, $15.00.....40&10%
Stearn's.....33⅓&10@33⅓&10&10%
Stearn's Silent Saw Vises.....33⅓@35%
Hopkins'.....₱ doz $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%

Miscellaneous—

Combination Hand Vises.....₱ gr.$42.00
Cowell Hand Vises.....20%
Bauer's Pipe Vises.....10%
Cincinnati.....25&10%
Enterprise Pipe Vises, each.....$3.00
Massey Combination Pipe.....40%

Wads—Price Per M.

U.M.C.&W.R.A.—B. E., 11 up.. 68¢
U.M.C.&W.R.A.—B. E., 9&10.. 82¢
U.M.C.&W.R.A.—B. E., 8.....96¢
U.M.C.&W.R.A.—B. E., 7.....$1.10
U.M.C.&W.R.A.—P. E., 11 up. 1.15
U.M.C.&W.R.A.—P. E., 9&10.. 1.50
U.M.C.&W.R.A.—P. E., 8..... 1.70
U.M.C.&W.R.A.—P. E., 7..... 1.80
Dis. 20&2½%

Eley's B. E., 11 and larger.....$1.70@$1.75
Eley's P. E., 12 to 20..... 3.00@ 3.25

Wagon Boxes—

See *Boxes, Wagon.*

Wagon Jacks—

See *Jacks, Wagon.*

Ware, Hollow—

Cast Iron, Hollow—

Stove Hollow-Ware—
Ground.....60&10%
Unground.....60&10&10%
White Enameled Ware—
Maslin Kettles.....75@75&5%
Boilers and Saucepans.....60@60&5%
Tinned Boilers and S'pans.....60@60&5%
Rustless Hollow Ware.....50@50&5%
Gray Enameled Ware—
Stove.....50%
Maslin Kettles.....60@60&10%
Boilers and Saucepans.....40&5%

Enameled—

Agate and Granite Ware, list Jan. 1, 1889.....33⅓&10%
Ironclad Enameled Ware....dis 33⅓&10%

Kettles—

Galvanized Tea-Kettles—

Inch....	6	7	8	9
Each....	55¢	60¢	65¢	75¢

Standard Fiber—

	Per Doz. Plain.	Decorated.
Wash-Basins, 10½ in....	$2.00	2.25
Wash-Basins, 12 in.....	2.25	2.35
Keelers, 11½ in.....		4.00
Cuspidors.....		8.00
Spittoons, "Daisy," 8 in.	4.00	4.50
Peck Measure.....	4.00	
Half-peck Measure.....	3.50	

See also Pails.

Indurated Fiber.—

Spittoons No. 2, ₱ doz.....$8.40
Basins, Ringed, ₱ doz., No. 2.....3.00
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₱ nest.....$7.50
Keelers Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₱ nest.....$2.00
Butter Bowls 15, 17 and 19-inch (3 pieces), ₱ nest.....$1.70
Liquid Measures, pt., qt., 2 qt. and funnell (4 pieces), ₱ set.....$1.60
20%

See also Pails.

Silver Plated, Hollow—

4 mo. or 5% cash in 30 days.

Reed & Barton.....
Meriden Britannia Co.....
Simpson, Hall, Miller & Co.....
Rogers & Brother.....
40&25%

Hartford Silver Plate Co.....
William Rogers Mfg. Co.....
40&25&2½%

Washers—
Size hole..... 5-16 ⅜ ½ ⅝ to 1⅛
Washers..... 5½ 4½ 3½ 2¾
In lots less than 200 ℔, ₱ ℔, add ¼¢, 5-℔ boxes 1¢ to list.

Washer Cutters—
See *Cutters, Washers.*

Wedges—
Iron.....₱ ℔ 3½¢
Steel.....₱ ℔ 3½¢

Weights, Sash—
Solid Eyes.....₱ ton $18.00@$19.00

Well Buckets Galvanized—See *Buckets, Well, Galvanized.*

Wheels, Well—
8 in., $2.25; 10 in., $2.70; 12 in., $3.25

Wire and Wire Goods—
Iron—
Market,
Br. & Ann., Nos. 0 to 18, 75&10@75&10&5%
Cop'd, Nos. 0 to 18, 75&5%
Galv., Nos. 0 to 18, 70&5@70&10%
Tin'd, Tin'd list, Nos. 0 to 18, .70@70&10%
} Extra 10% often given.

Stone,
Br. and Ann'd, Nos. 16 to 18, 80%
Bright and Ann'd, Nos. 19 to 26, 80&5%
Br. and Ann'd, Nos. 27 to 36, 82½&5%
Tinned,
} Extra 10% often given.

Tinned Broom Wire, 18 to 21, ₱ ℔....4½¢
Galvanized Fence.....75&10%
Brass, list Jan. 18, 1884.....40%
Copper, list Jan. 18, 1884.....40&5%
Annealed Wire on Spools.....60%
Malin's Steel and Tin'd on Spools.....60%
Malin's Brass and Cop. on Spools.....50%
Tate's Spooled, Tin'd & Annealed..60&5%
Tate's Spooled Cop. and Brass.....50%
Cast Steel Wire 50%
Stubs' Steel Wire.....$6.00 to 2, 30%
Steel Music Wire, 12 to 30, imported.... 60@70@ ₱ ℔

Wire Clothes Line, see Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—
Standard list.....80&20@85%

Wire Cloth and Netting—
Painted Screen Cloth, good quality, ₱ 100 sq. ft., $1.40
Galvanized Wire Netting.....75@75&10%

Wire, Barb—
See Trade Report.

Wire Rope—See *Rope, Wire.*

Wrenches—
American Adjustable 40%
Baxter's Adjustable "S".....40&10@50%
Baxter's Diagonal.....60%
Coes' Genuine.....50&3%
Coes' "Mechanics".....50&10&3%
Girard Standard.....65&10@70%
Lamson & Sessions' Engineers'....60&10%
Lamson & Sessions' Standard.....70&10%
P. S. & W. Agricultural.....
Girard Agricultural.....
Lamson & Sessions' Agric'l..
Siemis & Call's:
} 75&10@80%
Pat. Combination.....40%
Merrick's Pattern.....35%
Brigg s Pattern.....25%
Cylinder or Gas Pipe.....40&5%
No. 3 Pipe.....50%

Aiken's Pocket (Bright).....$6.00, 50&10%
The Favorite Pocket.....₱ doz., $4.00, 40%
Webster's Pat. Combination.....25%
Boardman's.....30%
Always Ready.....25&5%
Alligator.....50%
Donohue's Engineer.....20&10%
Acme, Bright.....50&2%
Acme, Nickeled.....40&2%
Hercules.....70@70&5%
Walker's.....55&3%
Diamond Steel.....55&3%
Cincinnati Brace Wrenches.....25&10%
Tafts' Vise Wrench.....55&10&3%

Wringers, Clothes—
Am. Wringer Co.'s list, July 1, '92..2% cash
Colby WringerCo., list Sept. 1, '91..2% cash
Lovell Mfg. Co., list Jan. 1, 1892..2% cash
Peerless Mfg. Co., list Feb., 1892..2% cash
National Wringer & Mfg. Co., list June 1, 1892.....2% cash

Wrought Goods—
Staples, Hooks, &c., list March 17, 1892 85&10@85&20%

Paints, Oils and Colors.—Wholesale Prices.

Animal and Vegetable Oils—

Linseed, City, raw.. per gal.	..	@	46
Linseed, City, boiled.....	..	@	49
Linseed, Western, raw.....	..	@	46
Lard, City, Extra Winter...	88	@	87
Lard, City, Prime.....	85	@	87
Lard, City, Extra No. 1.....	60	@	65
Lard, City, No. 1.....	45	@	50
Lard, Western, prime.....	85	@	86
Cotton-seed, Crude, prime..	..	@	37
Cotton-seed, Crude, off grades.....	33	@	35
Cotton-seed, Summer Yellow, prime.....	..	@	40
Cotton-seed, Summer Yellow, off grades.....	36	@	38
Sperm, Crude.....	68	@	70
Sperm, Natural Spring.....	67	@	70
Sperm, Bleached Spring....	72	@	75
Sperm, Natural Winter.....	73	@	76
Sperm, Bleached Winter....	78	@	81
Whale, Crude.....	43	@	45
Whale, Natural Winter.....	52	@	53
Whale, Bleached Winter....	55	@	57
Whale, Extra Bleached.....	57	@	58
Sea Elephant, Bleached Winter.....	..	@	..
Menhaden, Crude, Sound...	33	@	35
Menhaden, Crude, Southern	..	@	..
Menhaden, Light Pressed...	37	@	38
Menhaden, Bleached W'ter.	41	@	..
Menhaden, Extra Bleached.	42	@	43
Tallow, City, prime.....	50	@	55
Tallow, Western, prime....	45	@	50
Cocoanut, Ceylon.....	5¾@		6⅛
Cocoanut, Cochin.....	6	@	6¼
Cod, Domestic.....	38	@	40
Cod, Foreign.....	42	@	45
Red Elaine.....	35	@	36
Red Saponified.....₱ ℔	4½@		5
Bank..... per gal	35	@	36
Straits.....	36	@	37
Olive, Italian, bbls.....	64	@	65
Neatsfoot, prime.....	50	@	55
Palm, prime, Lagos.....₱ ℔	5¾@		6¼

Mineral Oils—

Black, 29 gravity, 25 @ 30 cold test.....per gal	7	@	7½
Black, 29 gravity, 15 cold test.....	7½@		8
Black, 29 gravity, summer..	6	@	6¼
Cylinder, light, filtered.....	14	@	16
Cylinder, dark, filtered.....	10	@	13
Paraffine, 23½@ 24 gravity..	11½@		12
Paraffine, 25 gravity.....	10½@		11
Paraffine, 28 gravity.....	8	@	8½
Paraffine, red.....	9	@	1¼

Paints and Colors—

Barytes, Foreign, ℔ ton..$22.00		@24.00	
Barytes, Amer. floated....29.00		@32.00	
Barytes, Amer. No. 1.....16.00		@18.00	
Barytes, Amer. No. 2.....13.00		@15.00	
Barytes, Amer. No. 3.....11.00		@12.00	
Blue, Celestial.....₱ ℔	6	@	8
Blue, Chinese.....	40	@	50
Blue, Prussian.....	25	@	40
Blue, Ultramarine.....	8	@	25
Brown, Spanish.....	1½@		1
Brown, Vandyke, Amer....	3	@	3½
Brown, Vandyke, English.	6	@	8
Carmine, No. 40, in bulk..	3.10	@	..
Carmine, No. 40, in boxes or barrels.....	3.20	@	..
Carmine, No. 40, in ounce bottles.....	4.20	@	..
Chalk, in bulk.....₱ ton..	....	@	1.75
Chalk, in bbls..₱ 100 ℔...	33	@	40
China Clay, English.....			
₱ ton.13.00		@18.00	
Cobalt Oxide, prep'd.....	9.00	@11.00	
Cobalt Oxide, black..... lots 100 ℔.	1.90	@	....
Cobalt Oxide, black..... less 100 ℔.	1.96	@	....
Green, Paris, in bulk.....	13	@	15½
Green, Paris, 170 @ 175 ℔ kegs.....	14	@	16
Green, Paris, small pack.	15½@		22
Green, Chrome, ordinary.	6	@	12
Green, Chrom', pure.....	22	@	25
Lead, Eng., B.B. white....	8½@		10
Lead, Amn. White, dry or in oil: Kegs, lots less than 500 ℔...	7¼	@	7¾
Kegs, lots 500 ℔ to 5 tons....	6¾	@	7
Kegs, lots 5 tons to 12 tons..	6¾	@	6¾
Kegs, lots 12 tons and over..	6½	@	6¾
Lead, White, in oil, 25 ℔ tin pails, add to keg price.....	..	@	⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price.....	..	@	1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.	..	@	⅛
Lead, Red, bbls. and ½ bbls...	6¾	@	7¼
Lead, Red, kegs.....	6¾	@	7¼
Litharge, kegs.....	6½@		7¼
Litharge, bbls. and ½ bbls.....	6½@		7¼

TERMS, &c.—Lead and Litharge.—On lots of 500 ℔ or over, 60 days' time or 2½ % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle.....	1.35	@	1⅛
Ocher, French Washed.....	1½@		2⅛
Ocher, German Washed....	1½@		3
Ocher, American.....	½@		1¾
Orange Mineral, English....	8½@		9
Orange Mineral, French....	10	@	10½
Orange Mineral, German....	8½@		9
Orange Mineral, American.	8½@		8¾
Paris White, English Cliff-stone.....	1.00	@	1.15
Paris White, American.....	65	@	75
Red, Indian, English.....	5½@		7
Red, Indian, American.....	2	@	6½
Red, Turkey.....	9	@	14
Red, Tuscan.....	9	@	11
Red, Venetian, American... ₱ 100 ℔..	1.00	@	1.10
Red, Venetian, English.....	1.20	@	1.35
Sienna, Italian, Burnt and Powd. ₱ ℔.....	4	@	5
Sienna, Ital., Burnt Lumps.	1½@		3½
Sienna, Ital., Raw, Powd...	4½@		5½
Sienna, Ital., Raw, Lumps..	1¾@		3½
Sienna, American, Raw.....	1½@		1¾
Sienna, American, Burnt and Powdered ₱ ℔	1¾@		1¾
Talc, French.....	..	@	1¼
Talc, American.....	1¼@		1⅜
Terra Alba, Fr'ch. ₱ 100 ℔	95	@	1 25
Terra Alba, English.....	70	@	80
Terra Alba, American No. 1	65	@	75
Terra Alba, American No. 2	45	@	50
Umber, Turkey, Burnt and Powdered..... ₱ ℔	3½@		4
Umber, Turkey Bnt. Ln.....	2¾@		3
Umber, Turkey, Raw and Powdered.....	3½@		....
Umber, Turkey, R'w Lumps	2¼@		2¾
Umber, Turkey, Bnt. Amer..	1¼@		1½
Umber, Turkey, R'w Amer.	1¼@		1½
Yellow, Chrome.....	10	@	25
Vermilion, American Lead..	11¼@		12
Vermilion, Quicks'er, bulk..	57	@	..
Vermilion, Quicks'er, bags..	58	@	..
Vermilion, Quicksilver sm'r pkgs.....	62	@	..
Vermilion, English Import.	85	@	90
Vermilion, Imitation, Eng..	8	@	35
Vermilion, Trieste.....	90	@	92½
Vermilion, Chinese.....	92½@		95
Whiting Common, ₱ 100 ℔	37½@		42½
Whiting Gilders'.....	45	@	55
Zinc, American, dry.....₱ ℔	4¼@		5
Zinc, French, Red Seal.....	7¾@		.
Zinc, Fre ch, Green Seal	9	@	..
Zinc, Fre ch, V. M. X.....	..	@	7
Zinc, Antwerp, Red Seal....	7¾@		..
Zinc, Antwerp, Green Seal..	7¾@		..
Zinc, German, L. Z. O.....	6¾@		7¼
Zinc, V. M. in Poppy Oil, G. Seal, lots of 1 ton and over.....	10¾@		11¼
lots less than one ton.....	11	@	11⅝
Zinc, V. M. in Poppy Oil, Red Seal.....	..	@	..
lots of 1 ton and over.....	10	@	10¼
lots of less than 1 ton.....	10¼@		10⅝

DISCOUNTS.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls. 4%. No discount allowed on less than bbl. lots.

Colors in Oil—

Black, Drop, Frankfort.....	25	@	30
Black, Drop, English.....	12	@	15
Black, Drop, Domestic.....	7	@	10
Black, Lampblack, Best.....	20	@	35
Black, Lampblack, Common	7	@	18
Black, Ivory.....	8	@	15
Blue, Chinese.....	35	@	40
Blue, Prussian.....	20	@	45
Blue, Ultramarine.....	12	@	18
Brown, Vandyke.....	7	@	12
Green, Chrome.....	8	@	13
Green, Paris.....	16	@	18½
Sienna, Raw.....	7	@	14
Sienna, Burnt.....	7	@	14
Umber, Raw.....	7	@	10
Umber, Burnt.....	7	@	10

Putty—

In barrels and ⅛ bbls.....	.01¾@		.01¾
In tubs.....	.01¾@		.01¾
In tin cans.....	.01¾@		.02¼
In bladders.....	.01¾@		.02¼

Spirits Turpentine—

In regu bbls.....	..	@	31½
In machine bbls.....	..	@	32

Glue—

Low Grade.....₱ ℔	8	@	10
Cabinet.....	12	@	14
Medium White.....	13	@	15
Extra White.....	17	@	20
French.....	10	@	22
English.....	10	@	15
Irish.....	12	@	..

Pacific Coast Representatives, CHAS. L. PIERCE & CO., 202 Market St., SAN FRANCISCO, CAL.
Canadian Representative, H. D. SIMMONS, 74 York St, TORONTO, ONT.

CURRENT METAL PRICES.

DECEMBER 14, 1892.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Common Iron:
¾ to 2 in. round and square.. } ₩ lb 1.90 @ 2.00¢
1 to 6 in. x ⅜ to 1 in..... }
Refined Iron:
¾ to 2 in. round and square. }
1 to 4 in. x ⅜ to 1½ in..... } ₩ lb 2.00 @ 2.10¢
4½ to 6 in. x ⅜ to 1 in. .... }
1 to 6 in. x ¼ and 5-16..... ₩ lb 2.20 @ 2.30¢
Rods—⅜ and 11-16 round and sq. ₩ lb 2.10 @ 2.20¢
Bands—1 to 6 x 3-16 to No. 12.... ₩ lb 2.30 @ 2.40¢
"Burden Best" Iron, base price. ₩ lb..... 3.00¢
Burden's "H. B. & S." Iron, base price..... ₩ lb.. 2.80¢
"Ulster"..... ₩ lb..... 3.00¢
Norway Bars..... 3.75 @ 4.00¢
Norway Shapes..... 4.50 @ 5.00¢

Merchant Steel from Store—

	Per lb
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots	2¾¢
Best Cast Steel, base price in small lots.	8 ¢
Best Cast Steel Machinery, base price in small lots	5 ¢

Sheet Iron from Store—

Black—	Common American.	R. G. Cleaned American.
Nos. 10 to 16	₩ lb 3 @	3½¢
17 to 20	₩ lb 3⅛ @ ...	3⅜¢
21 to 24	₩ lb 3¼ @	3⅜¢
25 and 26.	₩ lb 3⅜ @ ...	3¾¢
27	₩ lb 3½ @	3⅝¢
28	₩ lb 3⅝ @	4 ¢
American B. B.	₩ lb 4¢ @ 4¼¢	

Galvanized Sheet Iron—

	B. B.
Nos. 10 to 16	₩ lb 4.20¢
17 to 22	₩ lb 4½¢
23 to 24	₩ lb 4¾¢
25 to 26	₩ lb 5 ¢
27	₩ lb 5¼¢
28	₩ lb 5½¢
29 to 30	₩ lb 6½¢
Genuine Russia, according to assortment	₩ lb 12¢ @ 13¢
Patent Planished	₩ lb A, 10¢; B, 9¢
Craig Polished Sheet Steel	₩ lb, 8½¢

English Steel from Store—

Best Cast	₩ lb 15 ¢
Extra Cast	₩ lb 16½ @ 17 ¢
Swaged, Cast	₩ lb 16 ¢
Best Double Shear	₩ lb 15 ¢
Blister, 1st quality	₩ lb 12 ¢
German Steel, Best	₩ lb 10 ¢
2d quality	₩ lb 9 ¢
3d quality	₩ lb 8 ¢
Sheet Cast Steel, 1st quality	₩ lb 15 ¢
2d quality	₩ lb 14 ¢
3d quality	₩ lb 12½¢
R. Mushet's "Special"	₩ lb 48 ¢
" " " Annealed	₩ lb 75 ¢
" " "Titanic"	₩ lb 20 ¢

METALS—

Tin—

	Per lb
Banca, Pigs	22 ¢
Straits, Pigs	21½¢
Straits in Bars	23 ¢

Tin Plates—

Duty: 2.2¢ ₩ lb.

Charcoal Plates—Bright—

Guaranteed Plates command special prices, according to quality. Per box.

Melyn and Calland Grade.	IC, 10	x14..	@ $6.50
" " "	IC, 12	x12..	@ 6.75
" " "	IC, 14	x20..	@ 6.50
" " "	IC, 20	x28..	@ 13.00
" " "	IX, 10	x14..	@ 8.50
" " "	IX, 12	x12..	@ 8.75
" " "	IX, 14	x20..	@ 8.50
" " "	IX, 20	x28..	@ 17.00
" " "	DC, 12½	x17..	@ 6.00
" " "	DX 12½	x17..	@ 8.00
Allaway Grade	IC, 10	x14..	@ 6.00
" "	IC, 12	x12..	@ 6.25
" "	IC, 14	x20..	@ 6.00
" "	IC, 20	x28..	@ 12.00
" "	IX, 10	x14..	@ 7.50
" "	IX, 12	x12..	@ 7.75
" "	IX, 14	x20..	@ 7.50
" "	IX, 20	x28..	@ 15.00
" "	DC, 12½	x17..	@ 5.50
" "	DX, 12½	x17..	@ 7.00

Coke Plates—Bright—

Steel Coke.—IC, 10 x 14, 14 x 20..	$5.50	@	$5.60
10 x 20..	....	@	8.50
20 x 28..	11.50	@	12.00
IX, 10 x 14, 14 x 20..	....	@	7.00
BV Grade.—IC, 10 x 14, 14 x 20..	....	@	5.60

Charcoal Plates—Terne—

Guaranteed Plates command special prices according to quality.

Dean Grade.—IC, 14 x 20	@	$5.75
20 x 28	11.00 @	11.25
IX, 14 x 20	@	6.50
20 x 28	@	13.00
Abecarne Grade.—IC, 14 x 20	@	5.65
20 x 28	@	11.00
IX 14 x 20	@	6 50
20 x 28	@	13.00

Tin Boiler Plates—

IXX, 4x 26 112 sheets	@ $13.35
IXX, 14 x 28 112 sheets	@ 14.50
IXX, 14 x 31 112 sheets	@ 16.00

American Terne Plates.—Apollo.

IC, 14 x 20	$6.25
IC, 20 x 28	12.50
IX, 14 x 20	7.25
IX, 20 x 28	14.50

Copper—

Duty: Pig, Bar and Ingot, 1½¢; Old Copper, 1¢ ₩ lb. Manufactured (including all articles of which copper is a component of chief value), 35 % ad valorem.

Ingot—

Lake	@ 13 ¢
Ansonia grade Arizona	@ 12¼¢
Ansonia grade Casting	@ 11½¢

Sheet and Bolt—

Prices adopted by the Association of Copper Manufacturers of the United States, May 19, 1892. Subject to a discount of 10 % @ 20 %, according to size of order.

Not wider than	Not longer than	And longer than	Weights per sq. foot and prices per pound. Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30	72		22	23	22	23	24	25	28	30
30		72	22	22	22	23	25	27	31	....
36	96		22	22	22	24	26	30	33	....
36		96	22	22	23	25	27	31	35	....
48	96		22	22	24	26	28	32	....	....
48		96	22	22	25	27	29	33	....	....
60	96		22	22	27	29	34	....	....	....
60		96	23	23	28	....	....	....	....	....
84	96		23	24	....	....	....	....	....	....
84		96	24	25	....	....	....	....	....	....
Ov'r 84 in. wide			25	27	....	....	....	....	....	....

Bolt Copper, ⅜ inch diameter and over, per pound..... 22¢
Circles, Segments and Pattern Sheets, 60 in. diameter and less, 3¢ ₩ lb advance over prices of Sheet Copper required to cut them from.
Circles, Segments and Pattern Sheets, over 60 in. diameter, up to 96 in. diameter inclusive, 4¢ ₩ lb advance over prices of Sheet Copper required to cut them from.
Circles, Segments and Pattern Sheets, over 96 in. diameter, 5¢ ₩ lb advance over prices of Sheet Copper required to cut them from.
Cold or Hard Rolled Copper 14 oz. ₩ square foot and heavier, 1¢ ₩ lb over the foregoing prices.
Cold or Hard Rolled Copper lighter than 14 oz. ₩ square foot, 2¢ ₩ lb over the foregoing prices.
All Polished Copper over 20 in. wide, 2¢ ₩ lb advance over the foregoing prices.

Copper Bottoms, Pits and Flats—

	Per lb.
14 ounce to square foot and heavier	26¢
12 ounce and up to 14 ounce to square foot	27¢
10 ounce and up to 12 ounce	29¢
Lighter than 10 ounce	32¢

Circles less than 8 inches diameter, 2¢ ₩ lb additional.
Circles over 13 inches diameter are not classed as Copper Bottoms.
10 % @ 20 % discount, according to size of order.

Copper Wash Bowl Bottoms—

Tinned ₩ lb 34¢, 10% @ 20%

Tinning—

Net.

Tinning sheets on one side, 10, 12 and 14 x 48 each..... 8¢
Tinning sheets on one side, 30 x 60 each..... 30¢
For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each..... 15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each..... 12¢
For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.), each..... 12¢
Tinning sheets on one side, other sizes, per square foot..... 2½¢
For tinning both sides double the above prices.

Planished Brass and Copper—

Not larger than 30 x 60.

16 oz. and heavier	24¢ ₩ lb
14 oz	25¢ ₩ lb
12 oz	27¢ ₩ lb

Seamless Brass Tubes—

July 6, 1892. Net.

O. G.	N. G.	⅜	½	⅝	¾	⅞	1	1⅛
8-14	6-12	32	28	25	24	23	22	19
15	13	33	28	26	25	24	23	20
16	14	34	29	27	26	25	24	20
17	15	35	30	28	27	26	25	21
18	16	37	31	29	27	26	25	22
19	17	38	32	30	29	28	27	24
20	18-19	39	34	32	31	30	29	26
21	20	41	36	34	33	32	31	29
22	21	43	37	36	34	33	32	31
23	22	45	39	37	36	35	34	34
24	23	48	41	39	38	36	35	36
25	24	51	44	41	40	39	38	40

Copper, Bronze and Gilding Tube, 3¢ ₩ lb additional
Brazed Brass Tubing. (To No. 20 inclusive.)

Above 5-16 inch to 3 inch, inclusive	35¢
Plain, above 3 inch	45¢
Plain, 5-16 inch	45¢
Plain, ¼ inch	60¢
Plain, 3-16 inch	$1.00
Plain, ⅛ inch	$1.50
Fancy Tubing, Brass, to No. 20, inclusive	43¢ ₩ lb
Bronze Tubing, 3¢ ₩ lb more than Brass.	
Discount from list	30 @ ..%

Roll and Sheet Brass—

(Brown & Sharpe Standard Gauge.)

Common High Brass: Wider than and including	in. 2 / 10	in. 10 / 12	in. 12 / 14	in. 14 / 16	in. 16 / 18	in. 18 / 20	in. 20 / 22
To No. 20, inclusive	.21	.22	.23	.25	.27	.29	.31
Nos. 21, 22, 23 and 24	.22	.23	.24	.26	.28	.30	.32
Nos. 25 and 26	.22½	.23½	.24½	.27	.29	.31	.33
Nos. 27 and 28	.23	.24	.25	.28	.30	.32	.34

Common High Brass: Wider than and including	in. 22 / 24	in. 24 / 26	in. 26 / 28	in. 28 / 30	in. 30 / 32	in. 32 / 34	in. 34 / 36	in. 36 / 38	in. 38 / 40
To No. 20, inclusive	.33	.36	.39	.42	.46	.50	.55	.60	.65
Nos. 21, 22, 23 and 24	.34	.37	.40	.43	.47	.51	.56	.61	.66
Nos. 25 and 26	.35	.38	.41	.44	.48	.52	.57	.63	.71
Nos. 27 and 28	.36	.39	.42	.45	.49	.53	.58	.65	.75

Discount from List 10 % to 25 %.

Brass and Copper Wire—

List January 17, 1884.

Numbered by Stubs' gauge.	Soft & hard high brass.	Spring high brass.	Low brass.	Copper.
All Nos. to No. 16, inclusive	$0.22	$0.24	$0.26	$0.30
No. 17 and No. 18	.23	.25	.27	.31
No. 19 and No. 20	.24	.26	.28	.32
No. 21, or 0.032 diameter	.25	.27	.29	.33

Discount 10 % to 25 %.

Fine Numbers.

Numbered by London gauge.	Brass.	Spring high brass.	Low brass.	Copper.
No. 22	$0.26	$0.28	$0.30	$0.34
No. 23	.28	.30	.32	.36
No. 24	.30	.32	.34	.38
No. 25	.32	.34	.36	.40
No. 26	.35	.37	.39	.43
No. 27	.38	.40	.42	.46
No. 28	.42	.44	.46	.51
No. 29	.45	.47	.49	.54
No. 30	.48	.50	.52	.62
No. 31	.51	.53	.55	.67
No. 32	.55	.57	.59	.73
No. 33	.59	.61	.63	.82
No. 34	.64	.66	.68	.95
No. 35	.70	.72	.74	1.30
No. 36	.76	.78	.80	1.50
No. 37	1.00	1.02	1.04	1.70
No. 38	1.30	1.32	1.34	2.00
No. 39	2.00	2.02	2.00	3.25
No. 40	2.60	2.62	2.60	5.75

— % discount.
Spring Wire, 2¢ ₩ lb advance.

Copper Belt and Hose Rivets and Burrs—

	Per lb.		Per lb.
No. 5	49¢	No. 11	56¢
No. 6	49¢	No. 12	58¢
No. 7	49¢	No. 13	60¢
No. 8	50¢	No. 14	65¢
No. 9	52¢	No. 15	70¢
No. 10	54¢		

60 % @ 5 % discount.

Tobin Bronze—Rods.

Drawn Rods for Bolts, Forgings, &c.

¼ to 3½ inches inclusive..... 17¢ ₩ lb
Over 3½ to 5 inches inclusive..... 18¢ ₩ lb

Piston Rods, Finished True, Smooth and Straight.

¼ to 3½ inches inclusive..... 18¢ ₩ lb
Over 3½ to 5 inches inclusive..... 19¢ ₩ lb

Spelter—

Duty: Pig, Bars and Plates, $1.50 ₩ 100 lb.

Western Spelter	5¼¢
Bertha (pure)	8¼¢

Zinc—

Duty: Sheet, 2½¢ ₩ lb.

600 lb casks	7 ¢
Per lb	7½¢

Lead—

Duty: Pig, $2 ₩ 100 lb. Old Lead, 2¢ ₩ lb. Pipe and Sheets, 2½¢ ₩ lb.

American Pig	4.25¢
Bar	5¢
Pipe, subject to discount 20%	6¼¢
Tin-Lined Pipe, subject to discount 20%	15¢
Block Tin Pipe, subject to discount 20%	37½¢
Sheet, subject to discount 20%	7¢

Old Lead in exchange, 3¼¢ ₩ lb.

Solder—

½ @ ½ (Guaranteed)	13½¢ @ 15¢
No. 1	11½¢ @ 12½¢

Prices of Solder indicated by private brands vary according to composition.

Antimony—

Cookson	₩ lb 12½¢
Hallett's	" 11 ¢

Aluminum—

Prices per Ton.

Duty: 15¢ ₩ lb.

Over 98% pure	₩ lb .75
94% @ 98% pure	₩ lb .65

Old Metals—

Prices Paid in New York.

Heavy Copper	₩ lb 10 ¢
Light and Tinned Copper	₩ lb 9 ¢
Heavy Brass	₩ lb 7 ¢
Light Brass	₩ lb 6 ¢
Lead	₩ lb 3½¢
Tea Lead	₩ lb 3½¢
Zinc	₩ lb 2½¢
No. 1 Pewter	₩ lb 14 ¢
No. 2 Pewter	₩ lb 7 ¢
Wrought Scrap Iron	₩ gross ton $17.00
Heavy Cast Scrap	₩ gross ton 10.00
Stove Plate Scrap	₩ gross ton 7.00
Burnt Iron	₩ gross ton